NEC ExpressCluster SRE

Version 7.0

Installation and Configuration Guide

(Windows edition)

NEC ExpressCluster SRE 7.0 Installation and Configuration Guide (Windows edition)

Document Number EC-SRE-001-SR, Version 1.0, January 2005
Part Number 456-01699-000
Copyright © 2005 NEC Solutions America, Inc.

Information in this document is subject to change without notice. No part of this document may be reproduced or transmitted in any form or by any means, electronic or mechanical, for any purpose, without the express written permission of NEC Solutions America, Inc.

Microsoft®, Windows®, is registered trademarks of Microsoft Corporation.
Other system names, company names, and product names are trademarks and registered trademarks of their respective companies.

Contents

About this guide 5

Using this guide 5

Chapter 1: Installation Prerequisites 7

Hardware Prerequisites 7

Server Model 7

Minimum Hard disk and Memory Capacity 7

Software Prerequisites 7

Operating System 7

SNMP 7

Chapter 2: Installation (Windows 2003) 8

Chapter 3: Configuration (Windows 2003) 9

Computer Name Configuration 9

Default Loopback Adapter IP addresses 9

Register License 9

Starting the NEC ExpressCluster Server Service 18

Creating a Cluster 18

Configuring the Cluster Properties 33

Creating the Failover Group 38

Chapter 4: Installation (Windows 2000) 45

Chapter 5: Configuration (Windows 2000) 46

Computer Name Configuration 46

Default Loopback Adapter IP addresses 46

Register License 46

Starting the NEC ExpressCluster Server Service 54

Creating a Cluster 54

Configuring the Cluster Properties 68

Creating the Failover Group 73

Chapter 6: Microsoft SQL Server 2000 Customization 80

Prerequisites 80

Customization Steps 80

Chapter 7: Microsoft Exchange Server 2000 Customization 94

Prerequisites 94
Customization Steps 94
Chapter 8: General Customization Process ***109***
Command Reference **109**
ARMLOAD 109
ARMKILL 111
Prerequisites **112**
Customization Steps **112**
Appendix A: Modifying IP Addresses ***121***

About this guide

NEC ExpressCluster SRE is an integrated software solution designed for monitoring and automatically restarting applications on a single server.

Using this guide

This document includes step-by-step instructions to help you install NEC ExpressCluster SRE 7.0 and configure it to monitor the processes of Microsoft SQL Server 2000 and Microsoft Exchange Server 2000.
The following topics are covered:

- **Chapter 1: Installation Prerequisites** explains the hardware and software prerequisites to install NEC ExpressCluster SRE 7.0.
- **Chapter 2: Installation (Windows 2003)** explains the software installation steps in the silent mode for Microsoft Windows 2003 Enterprise Edition.
- **Chapter 3: Configuration (Windows 2003)** explains the steps to configure a single node cluster for Microsoft Windows 2003 Enterprise Edition.
- **Chapter 4: Installation (Windows 2000)** explains the software installation steps in the silent mode for Microsoft Windows 2000.
- **Chapter 5: Configuration (Windows 2000)** explains the steps to configure a single node cluster for Microsoft Windows 2000.
- **Chapter 6: Microsoft SQL Server 2000 Customization** explains the steps to customize scripts for monitoring Microsoft SQL Server 2000 processes.
- **Chapter 7: Microsoft Exchange Server 2000 Customization** explains the steps to customize scripts for monitoring Microsoft Exchange Server 2000 processes.
- **Chapter 8: General Customization Process** explains the steps to customize scripts for monitoring and restarting arbitrary application services.
- **Appendix A: Modifying IP Addresses** explains the steps to modify the default IP addresses assigned to the Microsoft Loopback adapter.

For installation and configuration on Windows 2003, please read the following chapters in sequence:

- Prerequisites (Chapter 1)
- Installation (Chapter 2)
- Configuration (Chapter 3)
- Customization (Chapter 6, Chapter 7, or Chapter 8)

For installation and configuration on Windows 2000, please read the following chapters in sequence:

- Prerequisites (Chapter 1)
- Installation (Chapter 4)
- Configuration (Chapter 5)
- Customization (Chapter 6, Chapter 7, or Chapter 8)

Please note that only installation (Chapter 1) should be performed at the factory since configuration and customization are dependent on customer site-specific environment.

Chapter 1: Installation Prerequisites

This chapter describes the hardware and software prerequisites that must be satisfied before installing NEC ExpressCluster SRE.

Hardware Prerequisites

Server Model

The NEC Express5800/320Lb or NEC Express5800/320Lc server

Minimum Hard disk and Memory Capacity

Hard Disk: 77MB, Memory: 512 MB.

Software Prerequisites

Operating System

Windows 2000 Advanced Server with Service Pack 4 or Windows 2003 Enterprise Edition

SNMP

Please ensure that SNMP is installed on the server where NEC ExpressCluster SRE would be installed. Please use *Control Panel -> Administrative Tools -> Services* and look for *SNMP Service* and *SNMP Trap Service.* If not installed, please install SNMP using *Control Panel -> Add or Remove Programs -> Add/ Remove Windows Components -> Management and Monitoring Tools -> Simple Network Management Protocol*.

Chapter 2: Installation (Windows 2003)

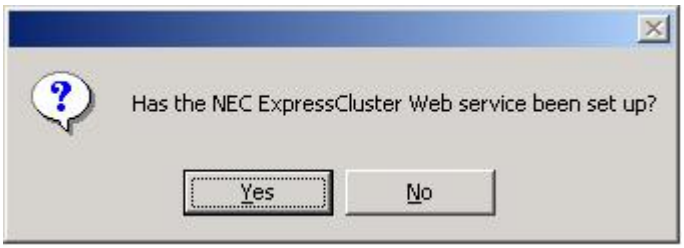
Please follow the steps below to install the *NEC ExpressCluster SRE Server*, *NEC ExpressCluster SRE Manager* and a *Microsoft Loopback Adapter*:

Step 1
Start the command prompt using *Start-> Command Prompt* and execute *auto_install.exe* in the ECLSRE sub-directory on the installation CD:

<CD-DIR>:\ECLSRE\auto_install.exe

The automatic installation process will take a few minutes and you may encounter a popup dialog box as shown below. This dialog box will close automatically and installation will continue. You do not need to execute any mouse clicks for this dialog box.

Step 2
If you see the following warning dialog box do not execute any mouse click. This dialog will close automatically and installation will continue.



This completes the installation of NEC ExpressCluster SRE Server, Manager and the Microsoft Loopback adapter.

Chapter 3: Configuration (Windows 2003)

This chapter describes the one-time initial configuration procedure for NEC ExpressCluster SRE in the final deployment environment.

Computer Name Configuration

The computer name MUST be finalized before starting configuration of NEC ExpressCluster SRE.

If the computer name (as shown by running the "hostname" command) is changed from the factory setting then you MUST perform the following step:

Step 1
Start the command prompt (using *Start-> Command Prompt)*, type in the following command and hit <*Enter*>:

C:\Program Files\NEC ExpressCluster\tools\sreprep

The command will complete silently and no user input is required.

Default Loopback Adapter IP addresses

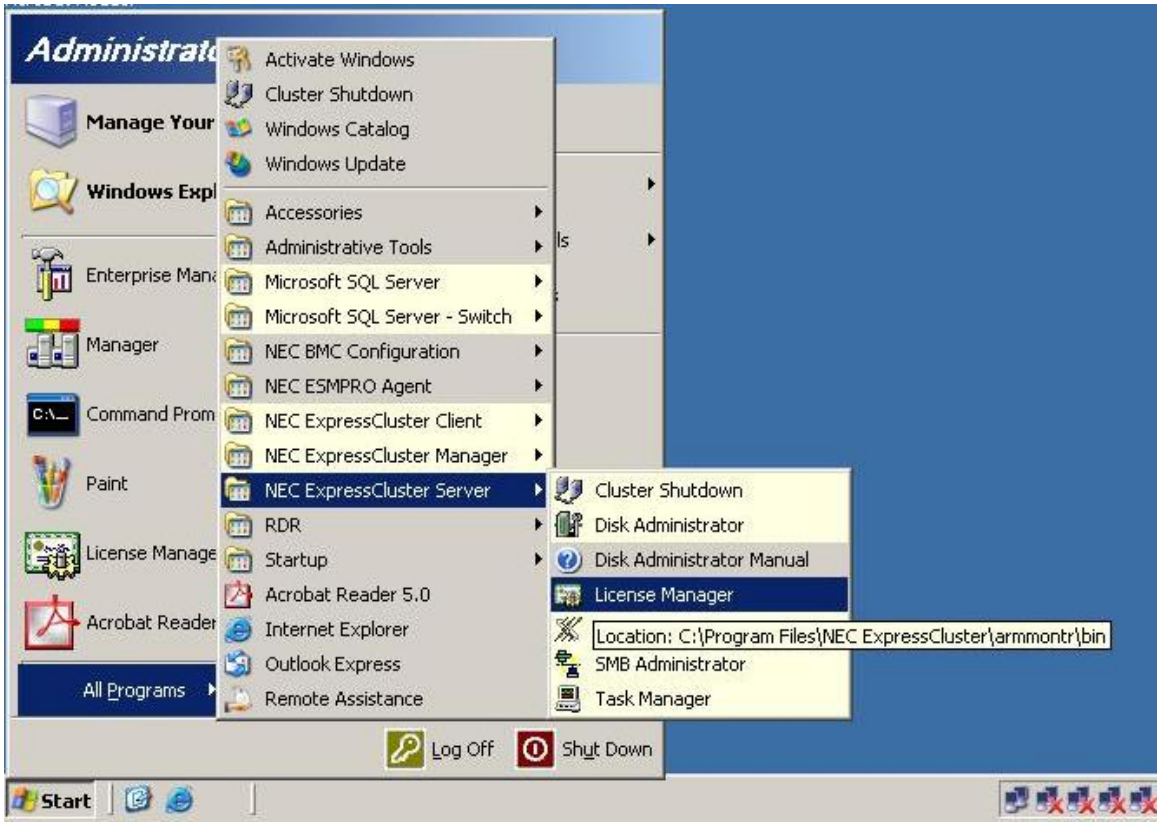
Following IP addresses are assigned as default addresses to the Loopback Adapter:

1. IP: 10.123.187.1 Subnet: 255.255.255.0
2. IP: 192.168.93.1 Subnet: 255.255.255.0 *(To be used as the Primary Interconnect IP address)*

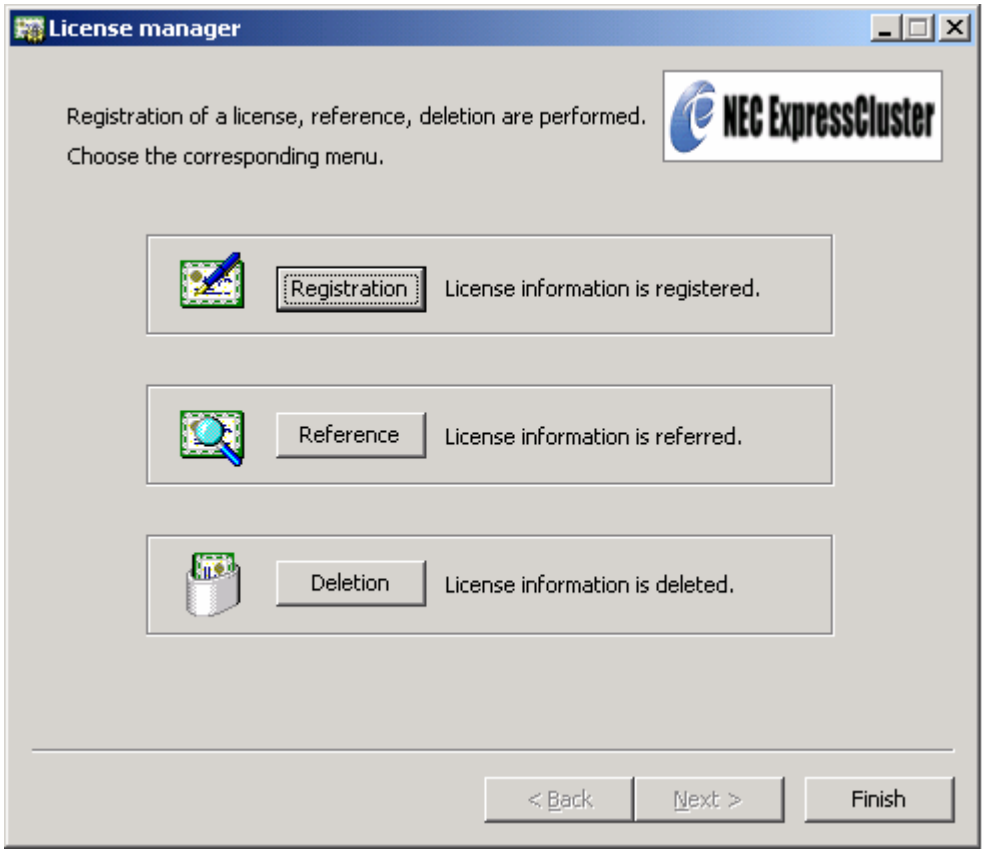
If you need to modify these IP addresses, please refer to Appendix A: Modifying IP Addresses

Register License

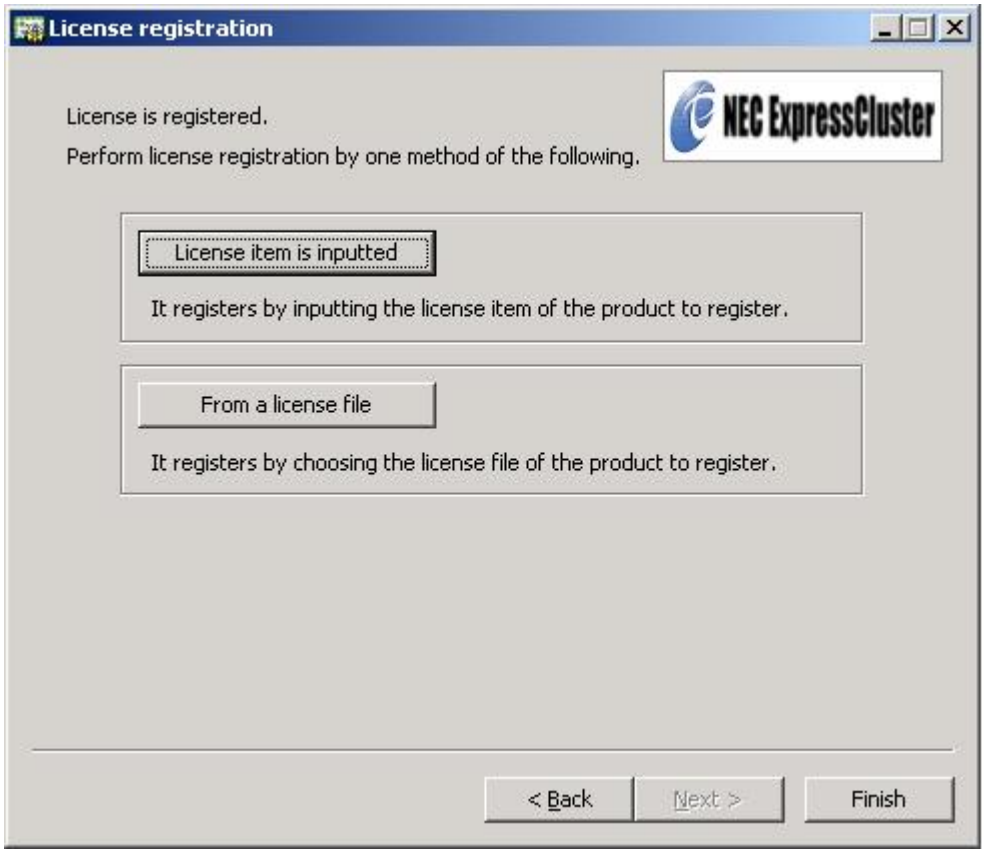
Step 1:
Start *"License Manager"* from *Start->All Programs->NEC ExpressCluster Server -> License Manager*.



Step 2:
Click the *[Registration]* button.

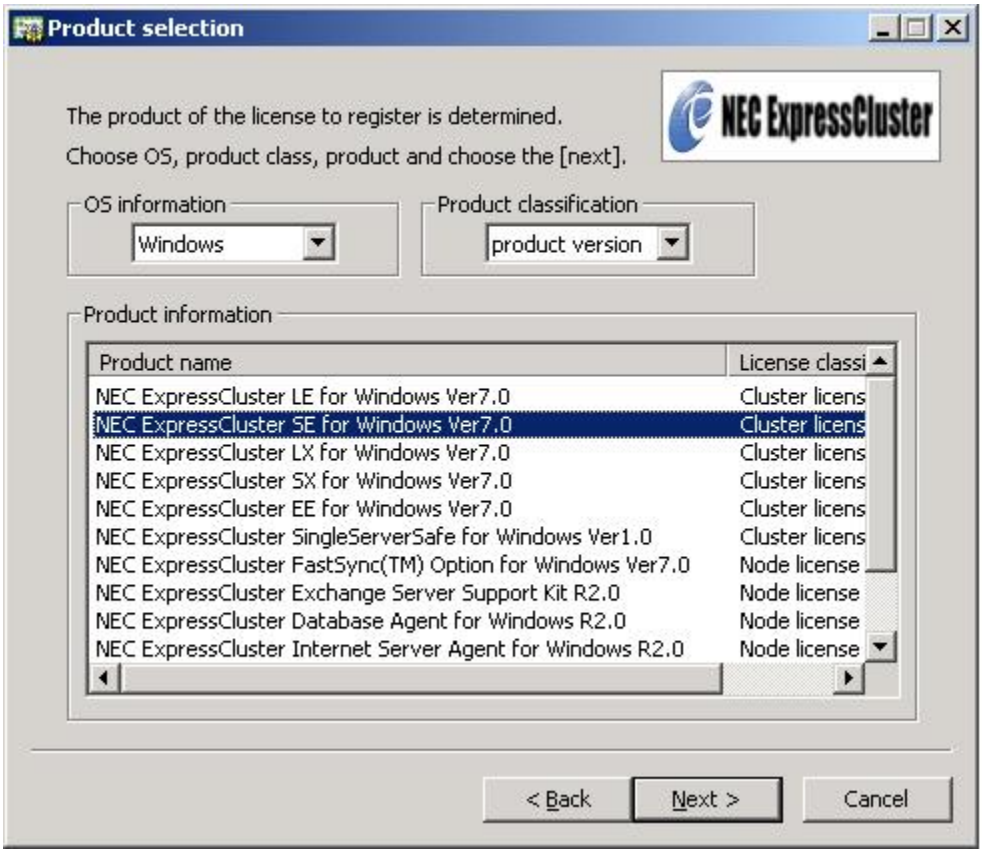


Step 3:
Click the *[License item is inputted]* button.


License registration
License is registered.
Perform license registration by one method of the following.
NEC ExpressCluster
License item is inputted
It registers by inputting the license item of the product to register.
From a license file
It registers by choosing the license file of the product to register.
< Back
Next >
Finish

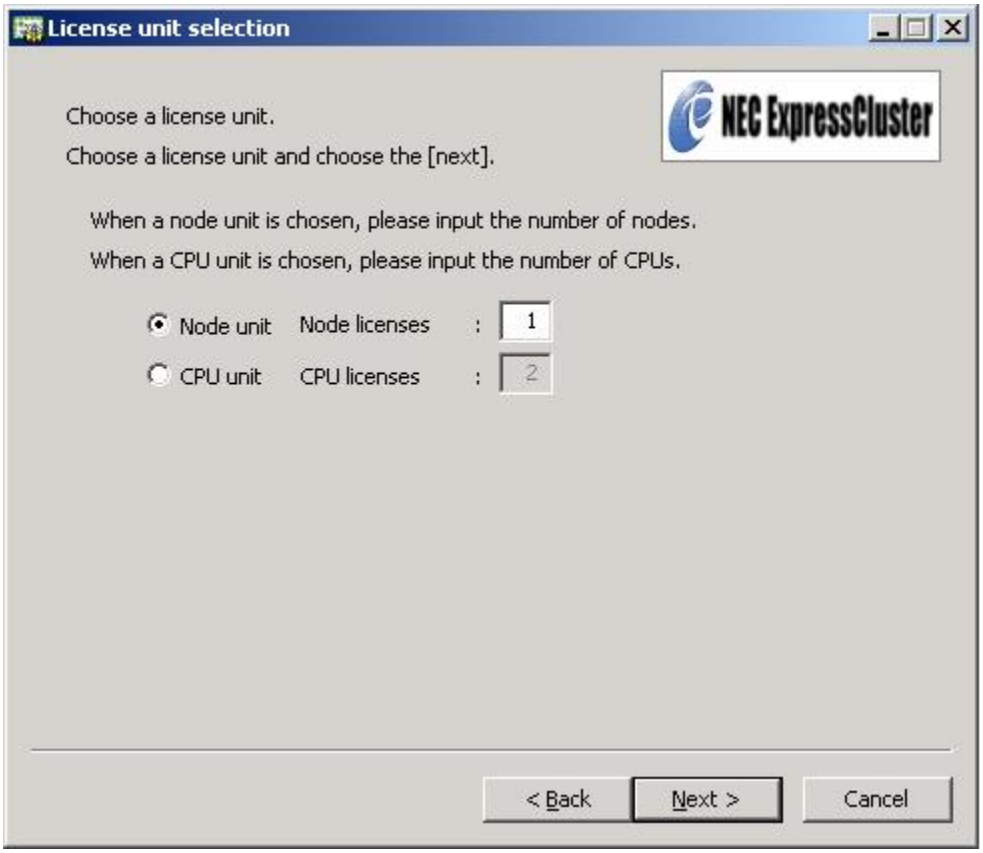
Step 4:

Select *Windows* for the OS information, *product version* for the Product Classification, *NEC ExpressCluster SE for Windows Ver7.0 - Cluster License* for the Product name and click *Next* as shown below:



Step 5:

Select the *Node unit* radio button, type in *1* as the Node licenses number and click *Next*:

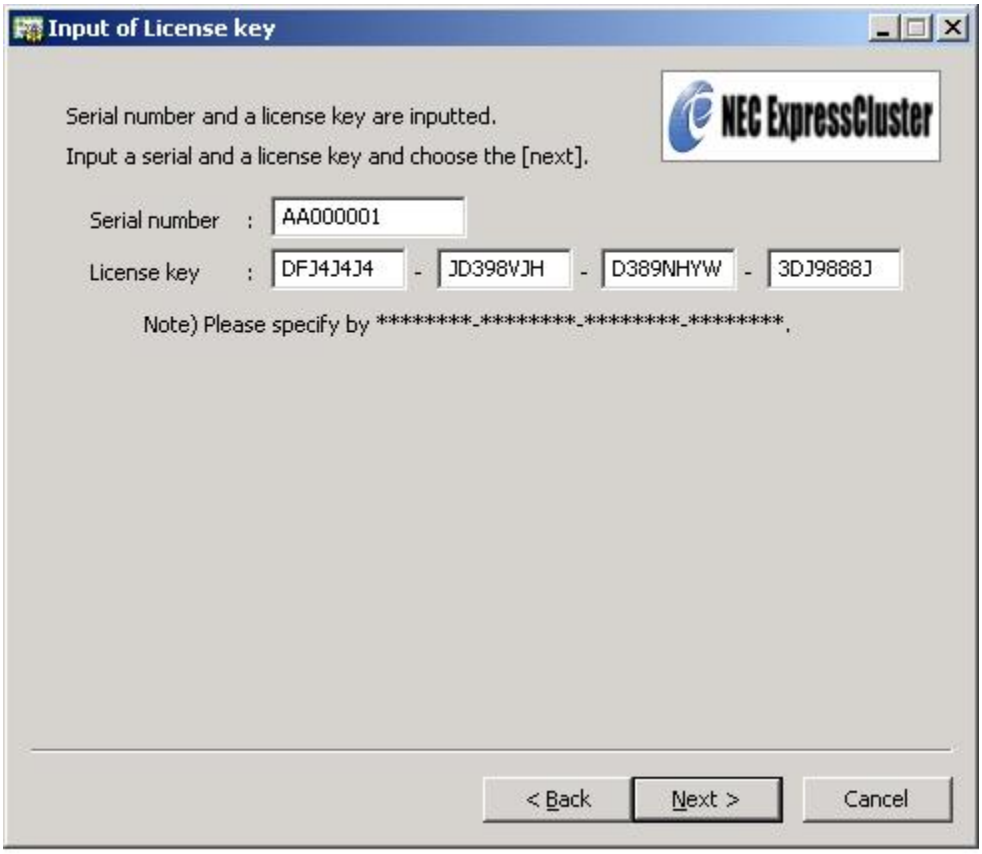


Step 6:

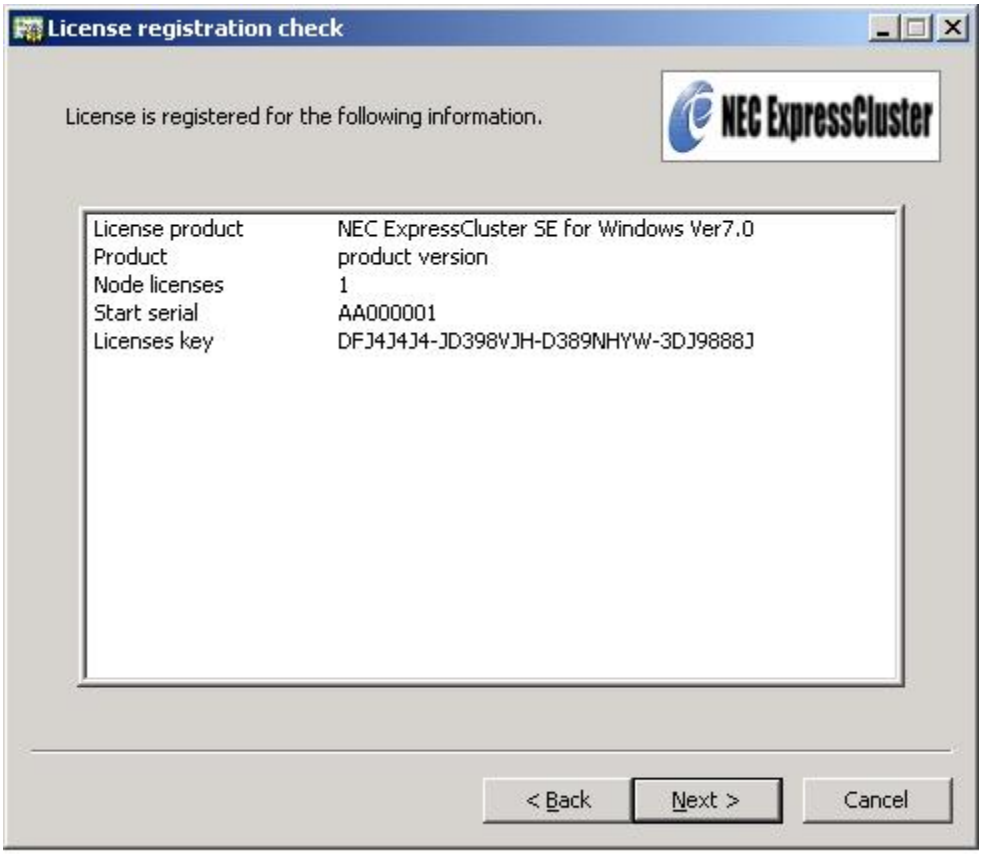
Locate the ExpressCluster SRE License Key at the back of the server along the edge as indicated in following figure:

Step 7:

Type in the *Serial number* (as indicated by *S/N: AA000001* above) and the K*ey* (as indicated by *Key: DFJ4J4J4-JD398VJH-D389NHYW-3DJ9888J* above) and click *Next*:

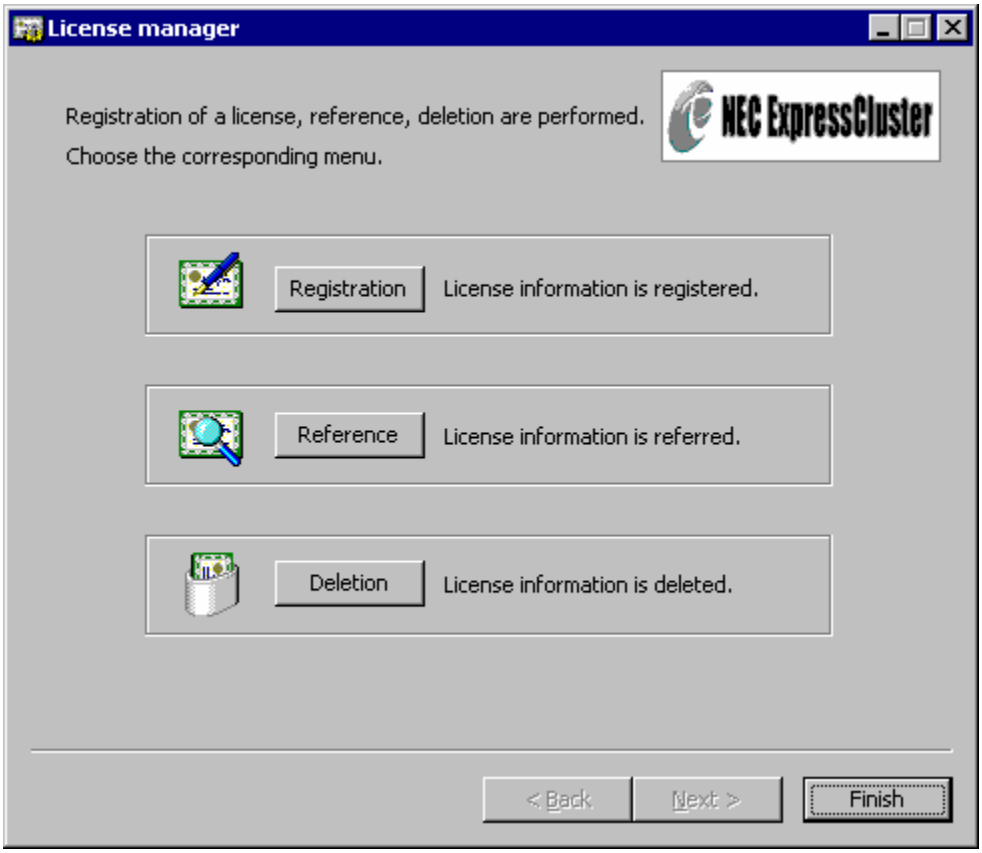

Input of License key
Serial number and a license key are inputted.
Input a serial and a license key and choose the [next].
NEC ExpressCluster
Serial number : AA000001
License key : DFJ4J4J4 - JD398VJH - D389NHYW - 3DJ9888J
Note) Please specify by ********-********-********-********.
< Back
Next >
Cancel

Step 8:
Confirm the license information and click *Next* on the following screen:



Step 9:
Check to see that the message "*The license was registered.*" appears. Now you have finished license registration.

Step 10:
Click *Finish* on the following screen:



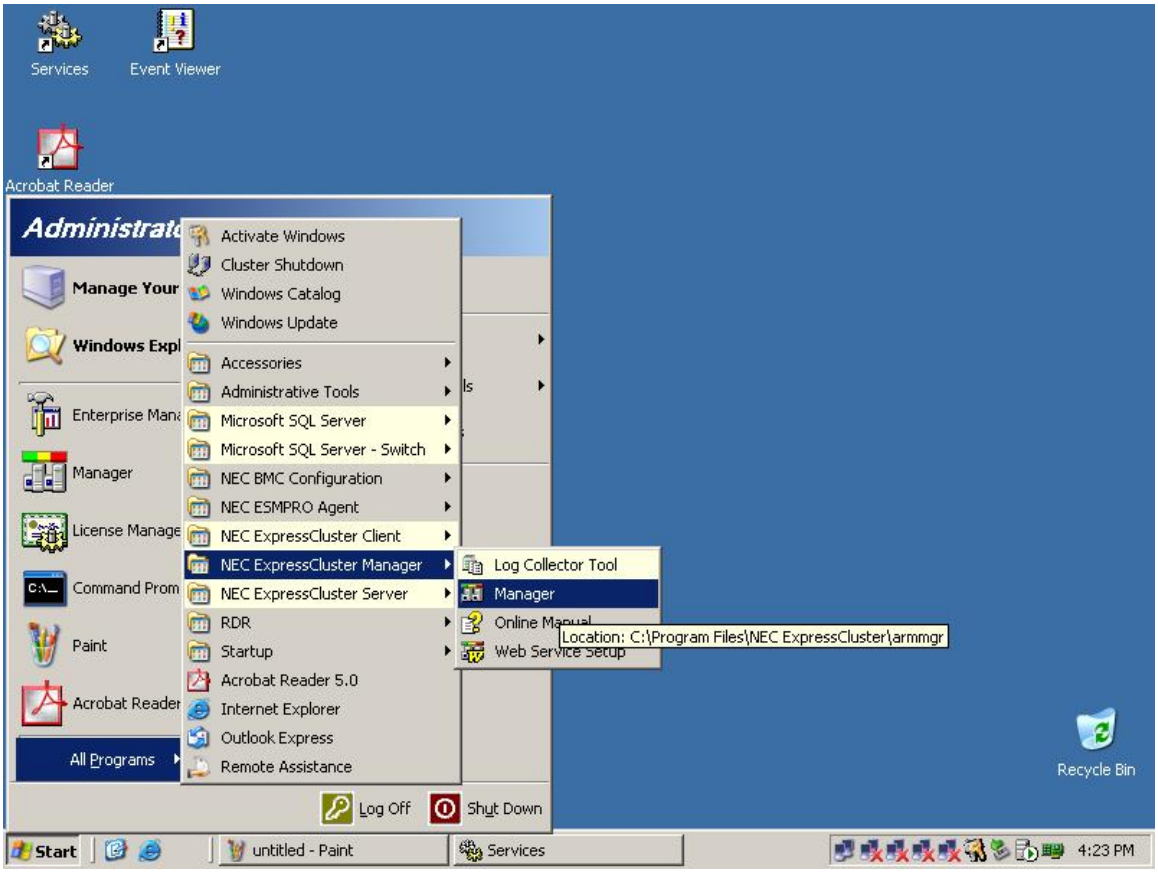
Starting the NEC ExpressCluster Server Service

Please execute the following step to start the NEC ExpressCluster Server service:

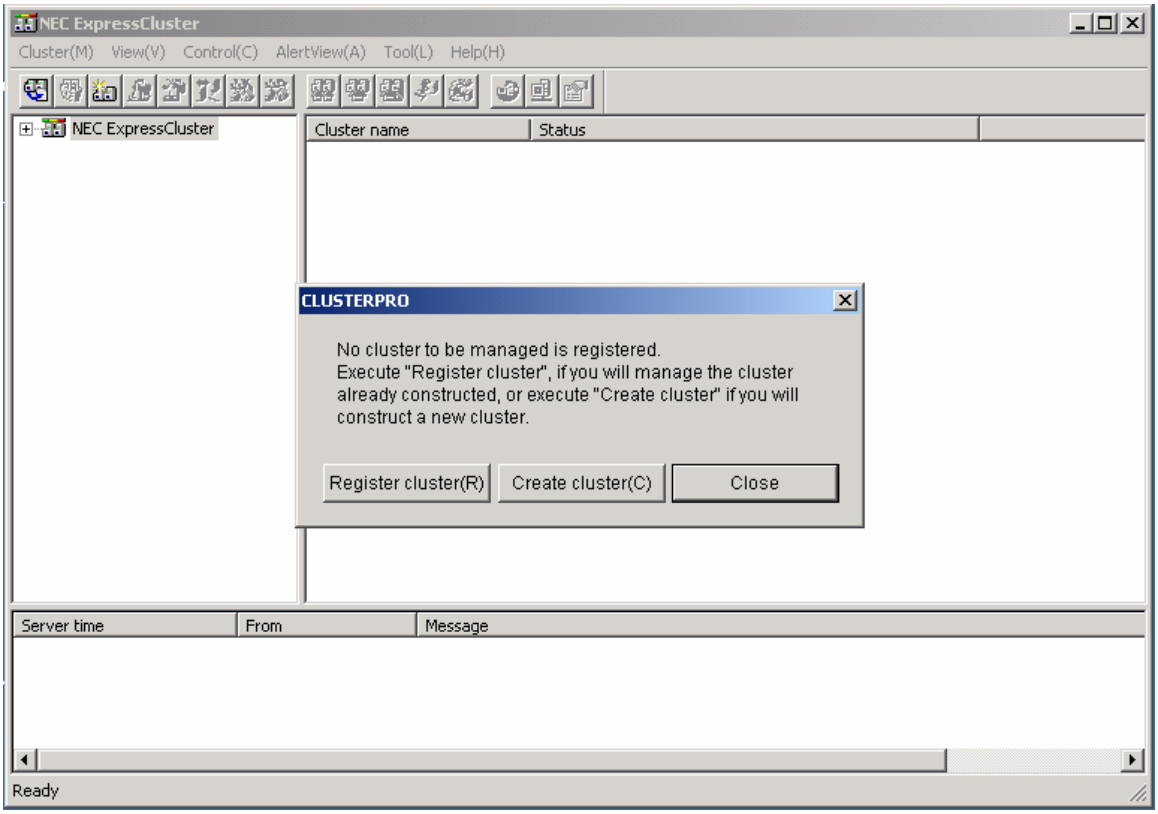
Step 1:
The default value by the installation for the "*NEC EXPRESSCLUSTER Server*" service is *[Manual]* startup. Change it to *[Automatic]* startup using *Start-> Administrative Tools-> Services* and *Start* the service.

Creating a Cluster

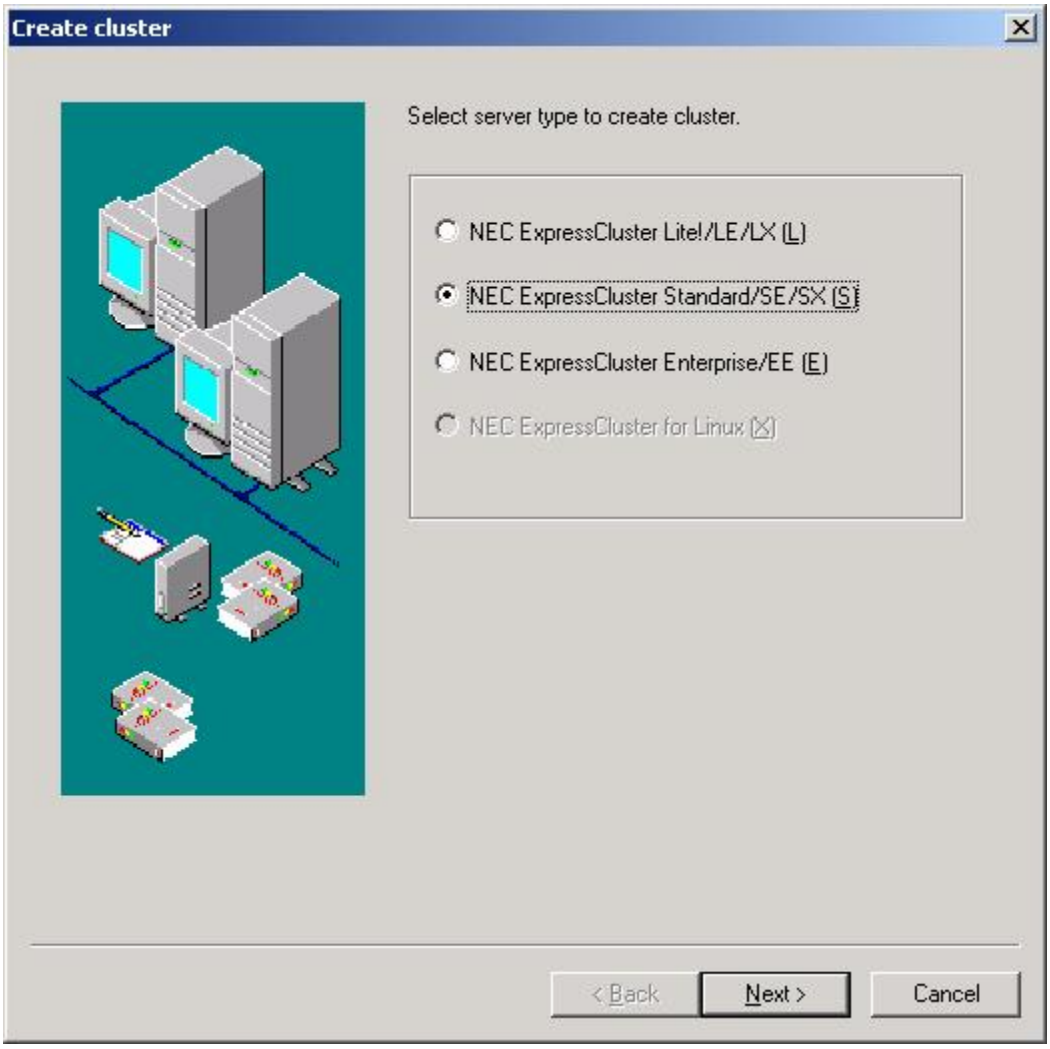
Step 1:
Start the NEC ExpressCluster Manager using *Start->All Programs->NEC ExpressCluster Manager ->Manager*



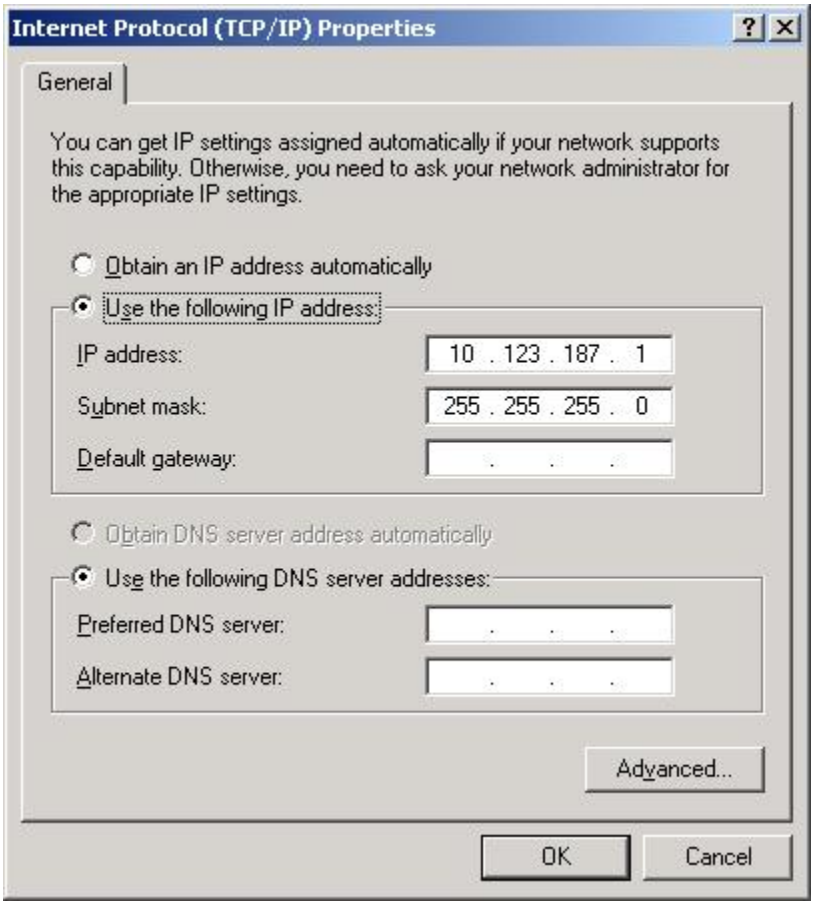
Step 2:
Click the *Create cluster(C)* button on the following screen:



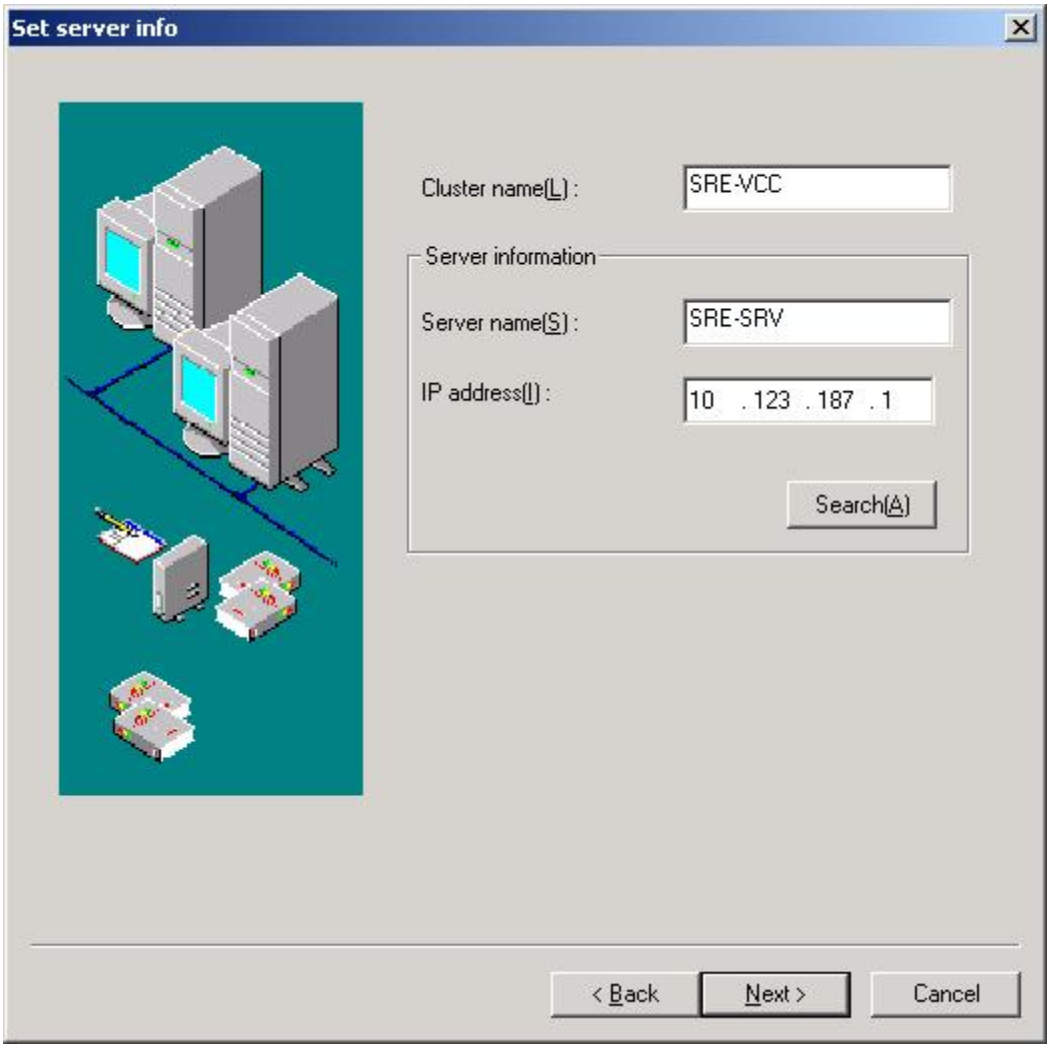
Step 3:
Select *NEC ExpressCluster Standard/SE/SX (S)* and click *Next* on the following screen:



Step 4:
Type in a cluster name (e.g. SRE-VCC), the computer name of the server (e.g. SRE-SRV) and first IP address (e.g. 10.123.187.1). This is the IP address that you see in the properties of your Network Interface as below:

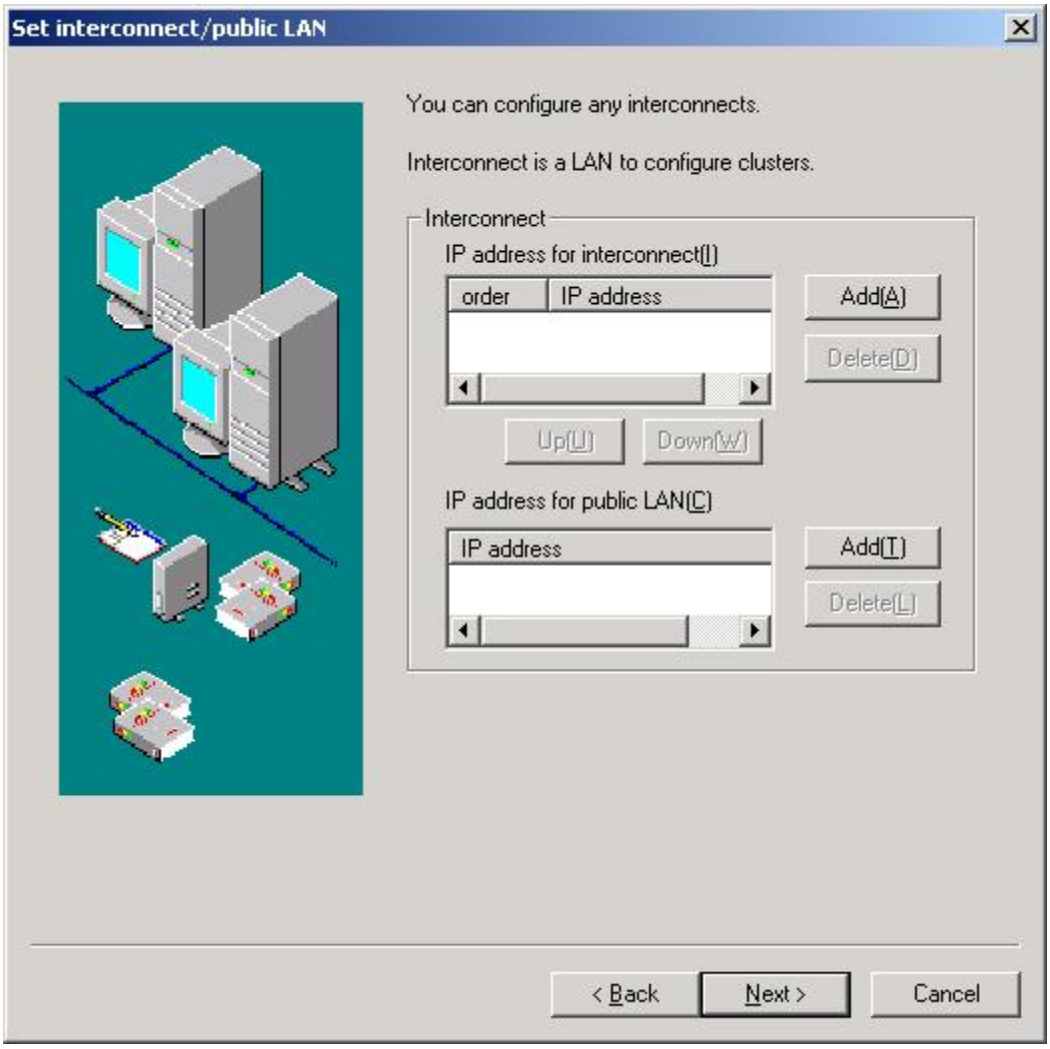

Internet Protocol (TCP/IP) Properties
General
You can get IP settings assigned automatically if your network supports this capability. Otherwise, you need to ask your network administrator for the appropriate IP settings.
Obtain an IP address automatically
Use the following IP address:
IP address:
10 . 123 . 187 . 1
Subnet mask:
255 . 255 . 255 . 0
Default gateway:
Obtain DNS server address automatically
Use the following DNS server addresses:
Preferred DNS server:
Alternate DNS server:
Advanced...
OK
Cancel

Note:
Up to 15 characters are allowed for the cluster name. Please do not use a cluster name which is same as the computer name.



Click *Next*:

Step 5:
On the following screen click the *Add (A)* button:

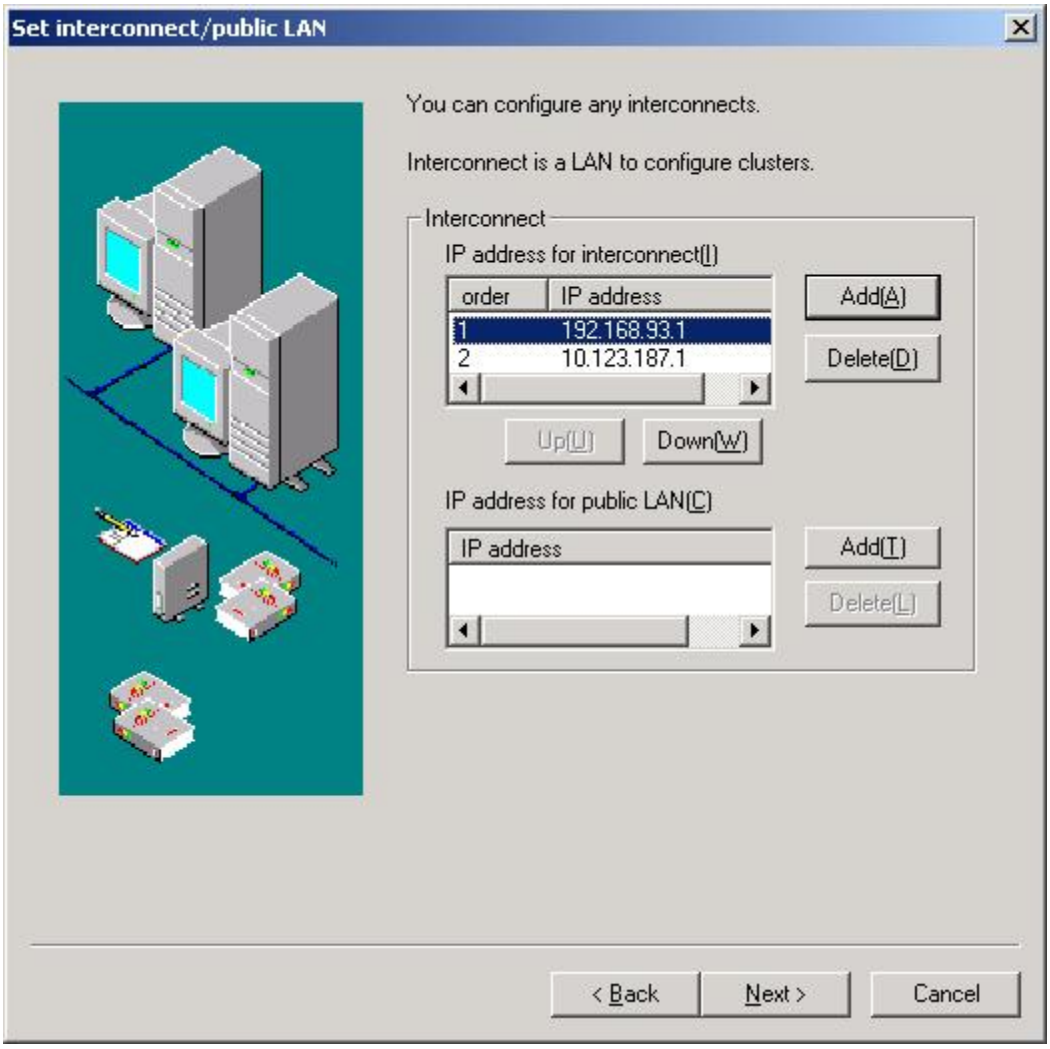


Step 6:
Select the ***second IP address*** which would be used as Primary Interconnect ***first (DO NOT SELECT THE IP ADDRESS AS IN STEP 4 ABOVE).*** In this case select 192.168.93.1 as below:

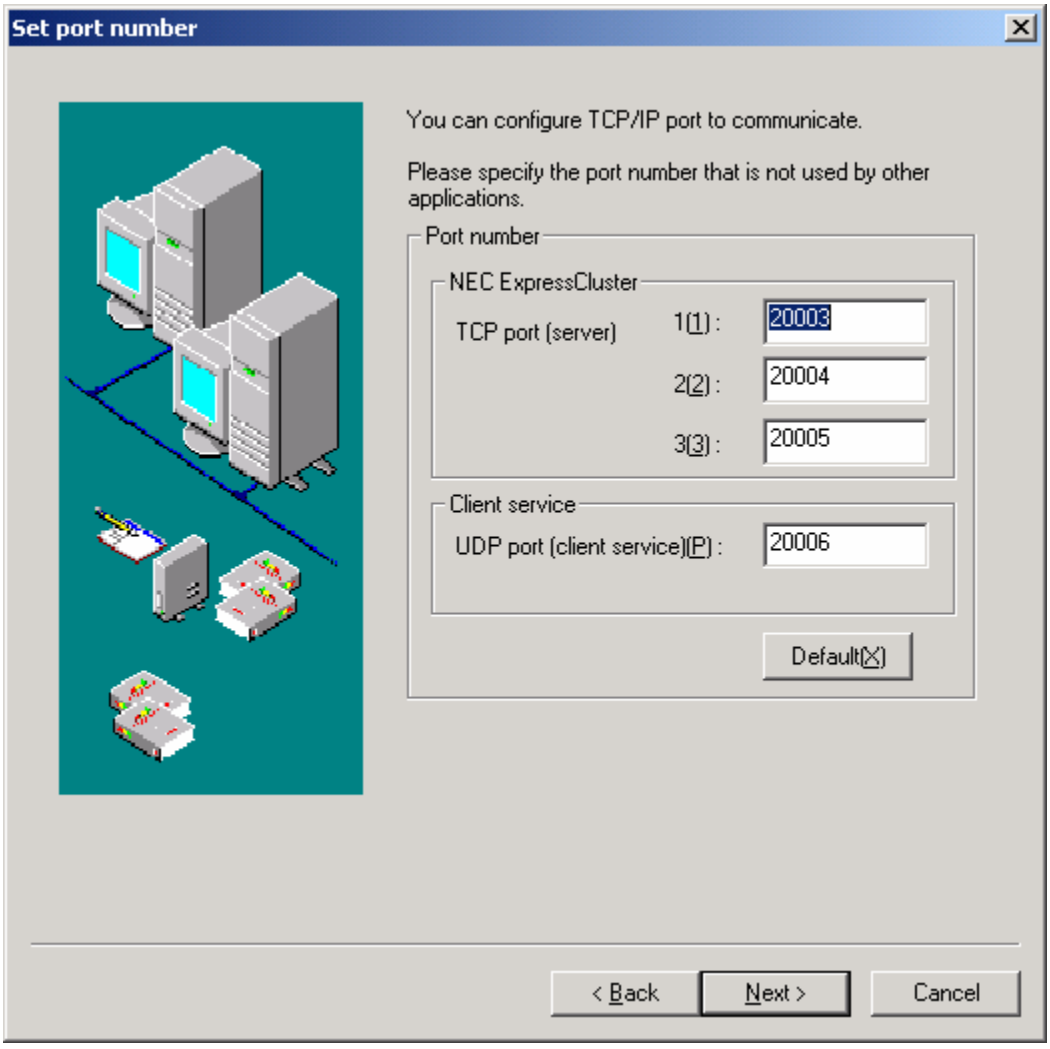
Click *OK*. Then click on *Add (A)* again and add ***first IP address*** as in *Step 4* above. Following is the image:

Click *OK*

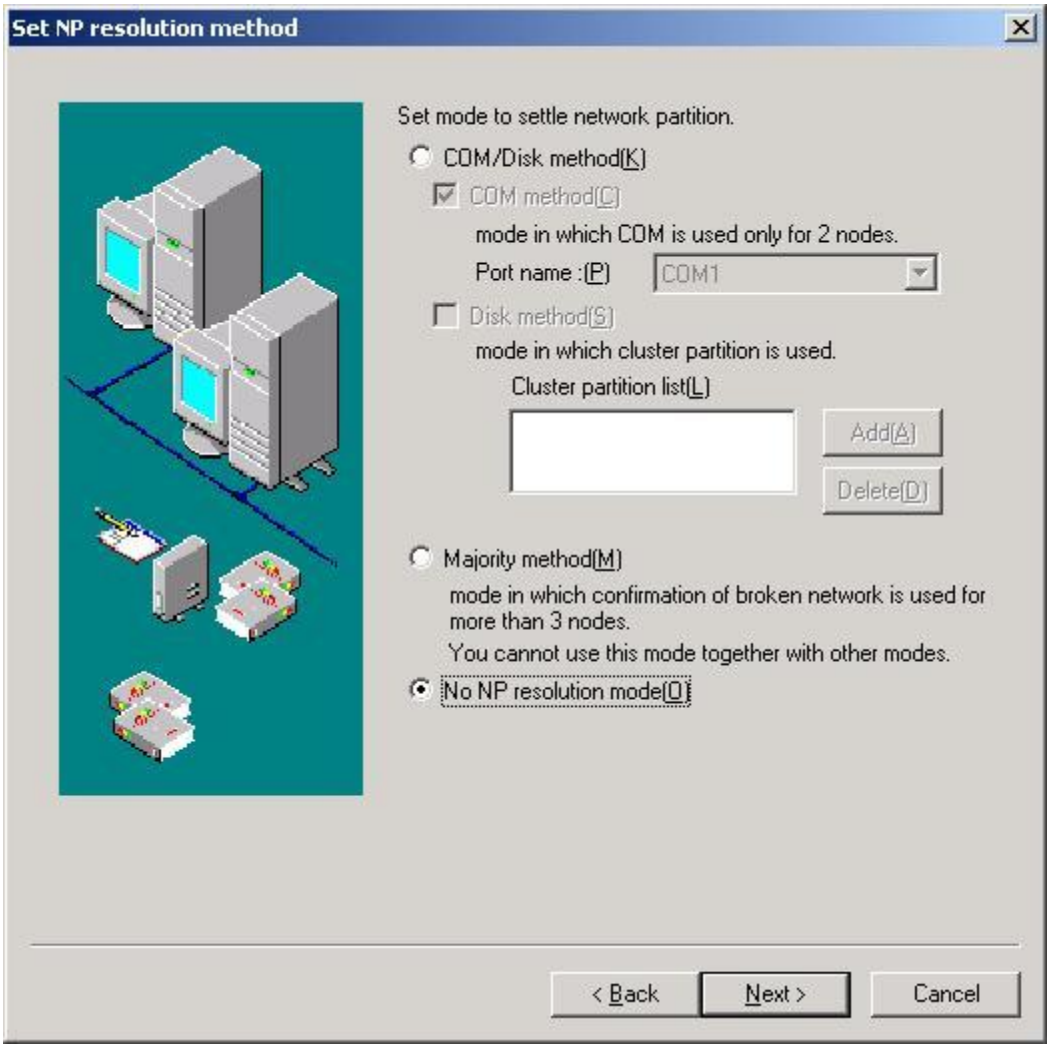
Step 7:
Click *Next* on the following screen:



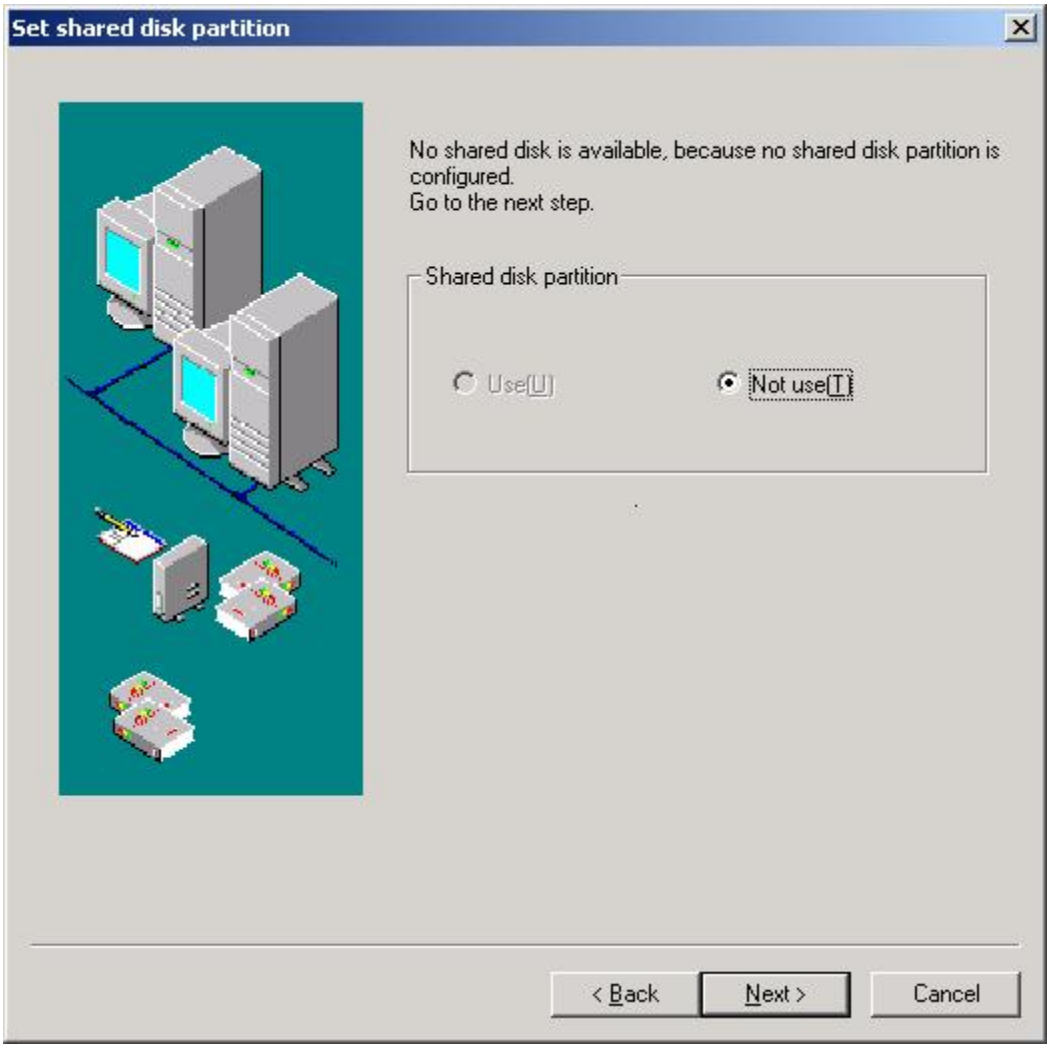
Step 8:
Click *Next* on the screen below:



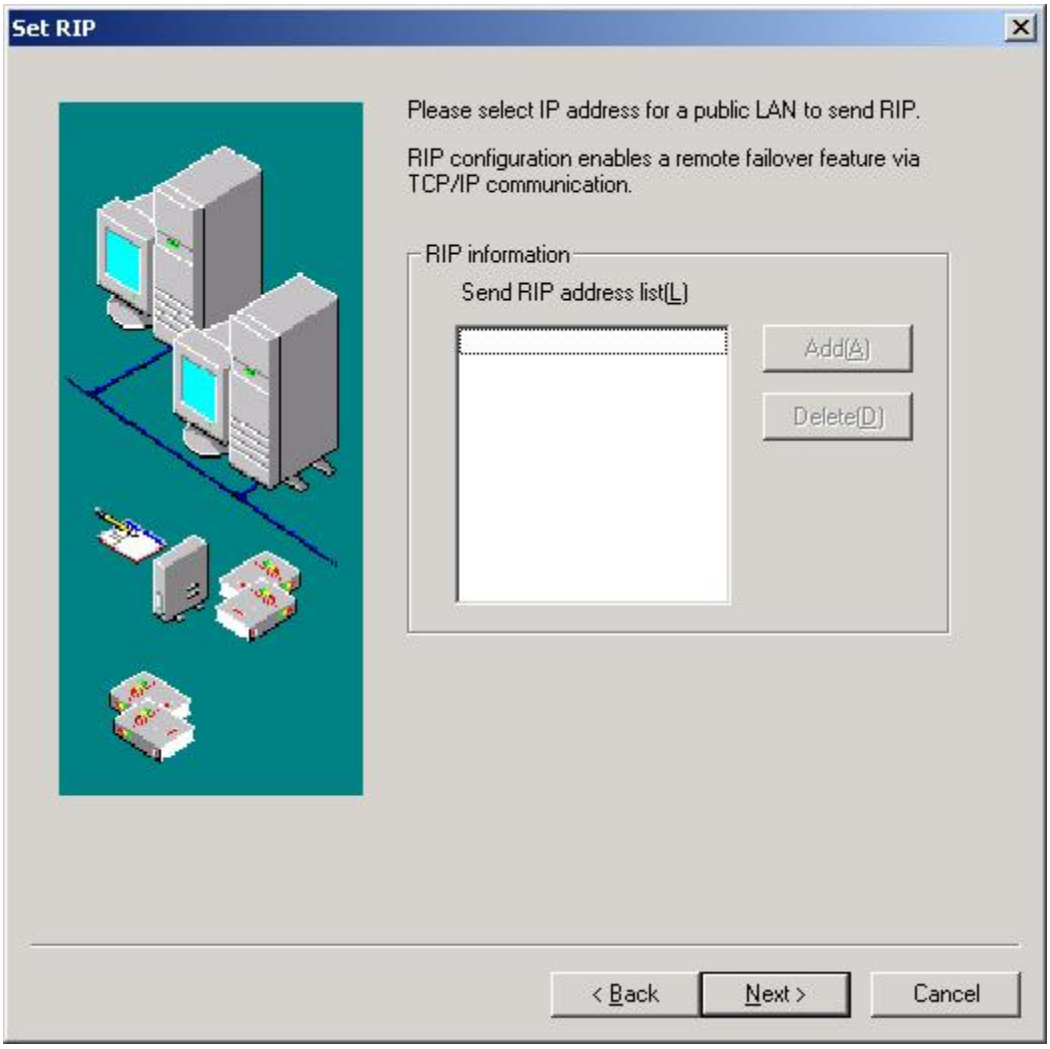
Step 9:
Select *No NP resolution mode(O)* and click *Next* on the screen below:


Set NP resolution method
Set mode to settle network partition.
COM/Disk method(K)
COM method(C)
mode in which COM is used only for 2 nodes.
Port name :(P)
COM1
Disk method(S)
mode in which cluster partition is used.
Cluster partition list(L)
Add(A)
Delete(D)
Majority method(M)
mode in which confirmation of broken network is used for more than 3 nodes.
You cannot use this mode together with other modes.
No NP resolution mode(O)
< Back
Next >
Cancel

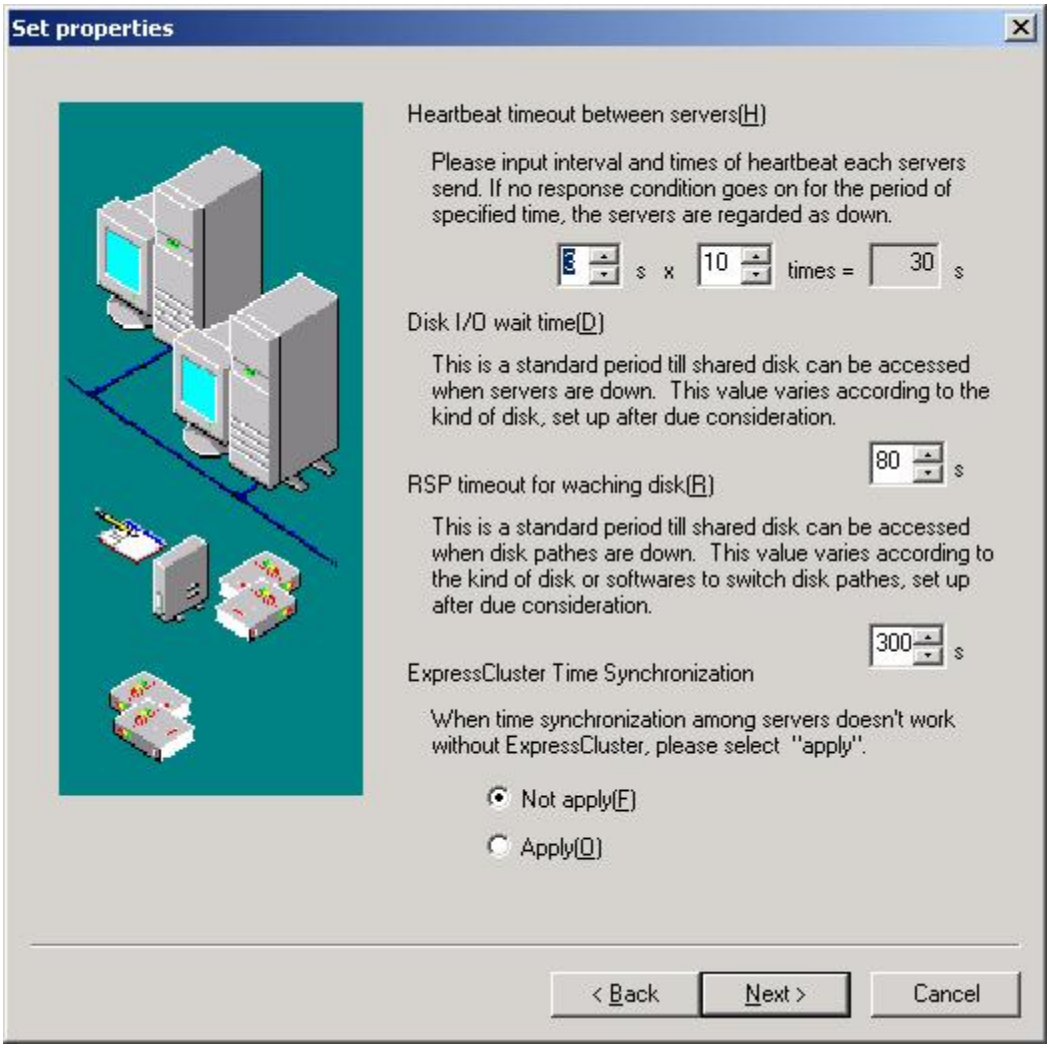
Step 10:
Click *Next* on the screen below:


Set shared disk partition
No shared disk is available, because no shared disk partition is configured.
Go to the next step.
Shared disk partition
Use(U)
Not use(T)
< Back
Next >
Cancel

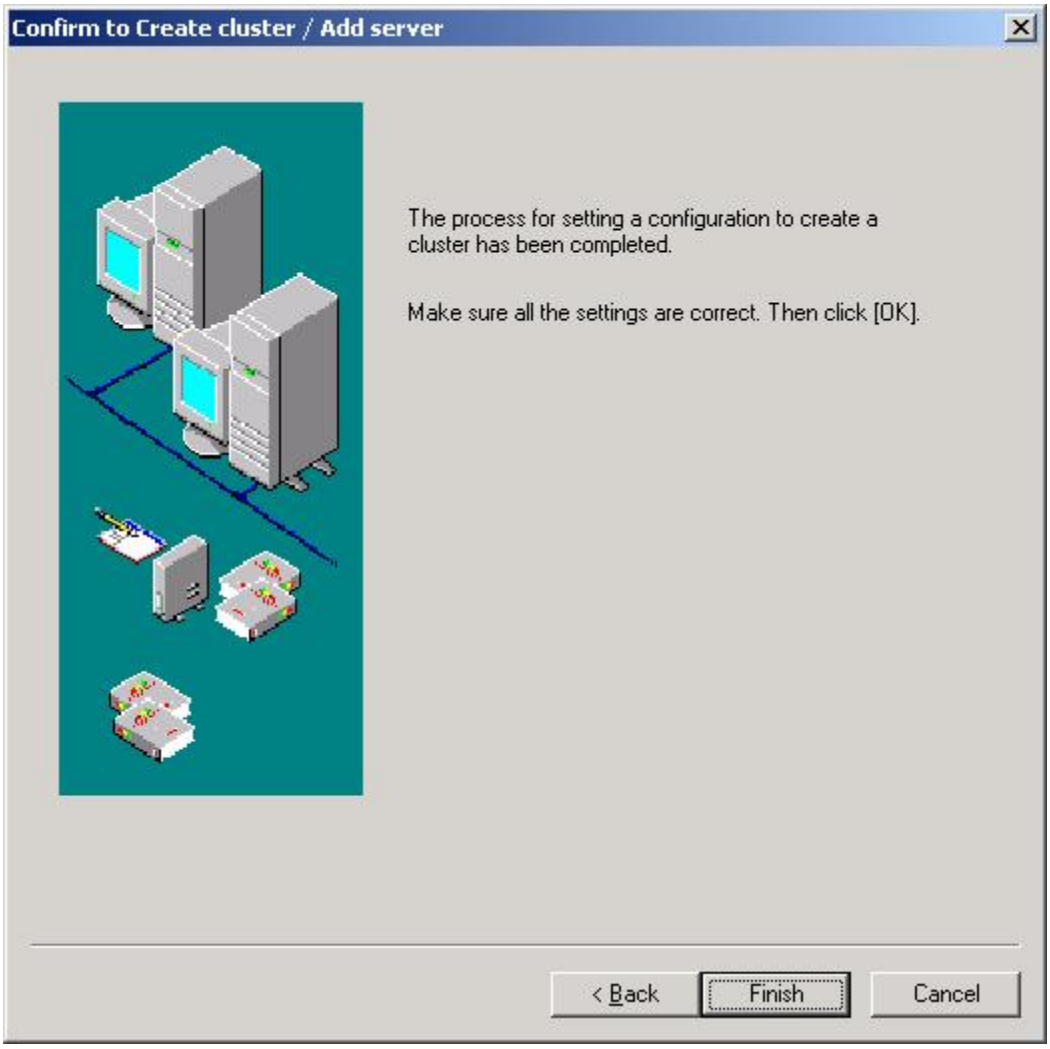
Step 11
Click *Next* on the screen below:


Set RIP
Please select IP address for a public LAN to send RIP.
RIP configuration enables a remote failover feature via TCP/IP communication.
RIP information
Send RIP address list(L)
Add(A)
Delete(D)
< Back
Next >
Cancel

Step 12
Click *Next* on the screen below:

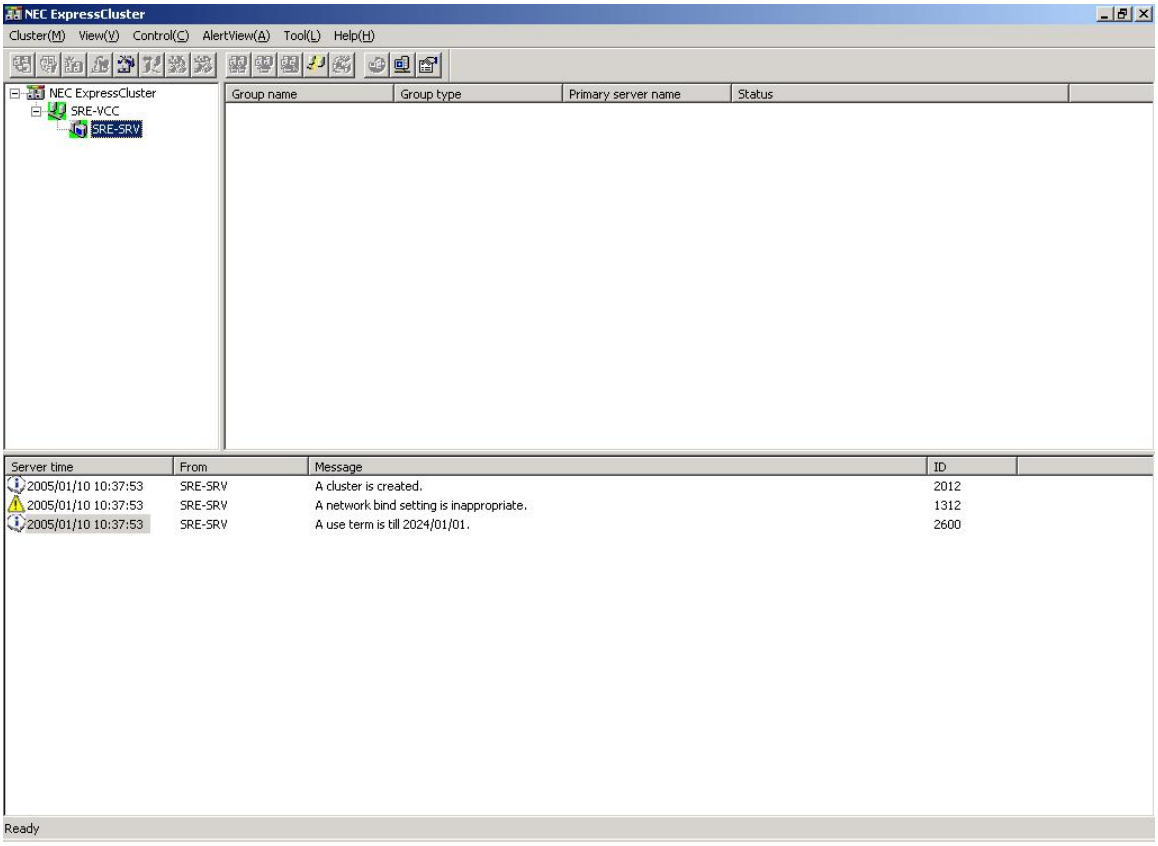

Set properties
Heartbeat timeout between servers(H)
Please input interval and times of heartbeat each servers send. If no response condition goes on for the period of specified time, the servers are regarded as down.
3 s x 10 times = 30 s
Disk I/O wait time(D)
This is a standard period till shared disk can be accessed when servers are down. This value varies according to the kind of disk, set up after due consideration.
80 s
RSP timeout for waching disk(R)
This is a standard period till shared disk can be accessed when disk pathes are down. This value varies according to the kind of disk or softwares to switch disk pathes, set up after due consideration.
300 s
ExpressCluster Time Synchronization
When time synchronization among servers doesn't work without ExpressCluster, please select "apply".
Not apply(F)
Apply(O)
< Back
Next >
Cancel

Step 13
Click *Finish* on the screen below:


Confirm to Create cluster / Add server
The process for setting a configuration to create a cluster has been completed.
Make sure all the settings are correct. Then click [OK].
< Back
Finish
Cancel

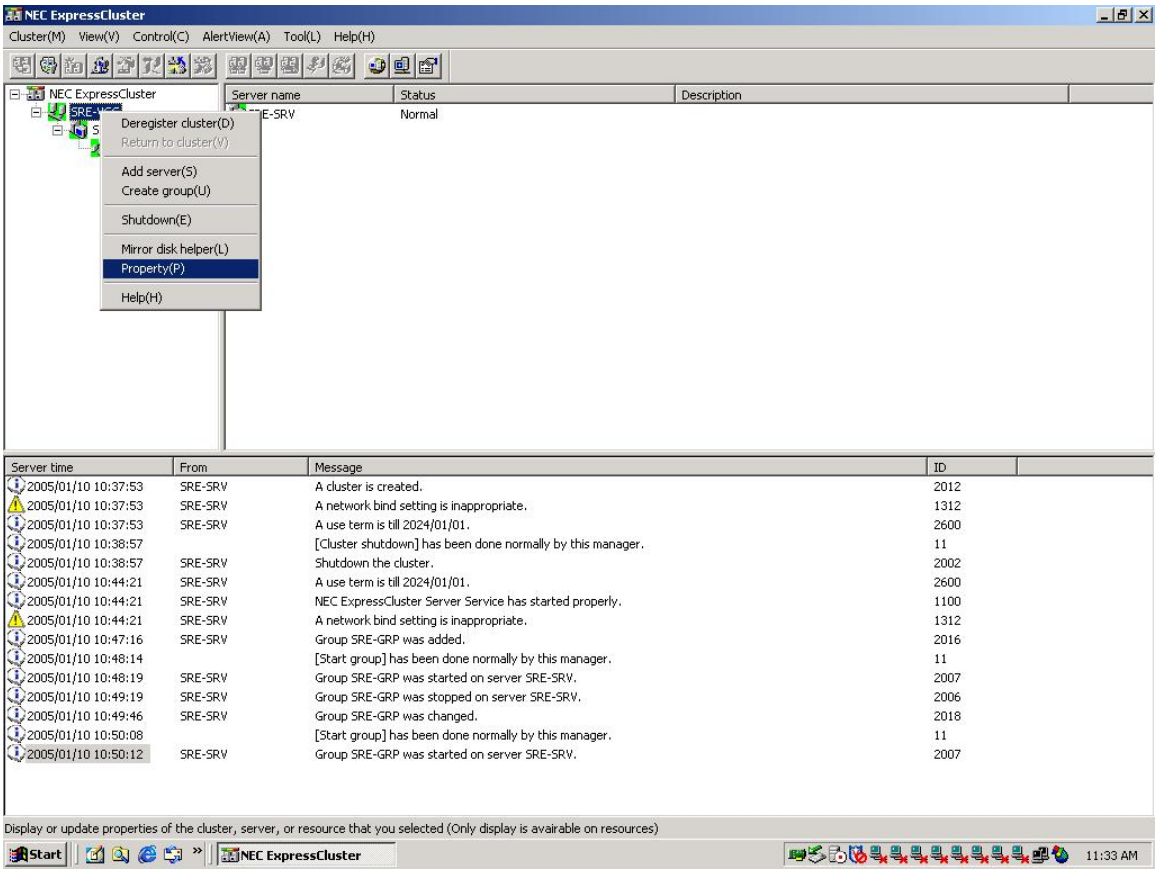
Step 14
Click *OK* on the screen below:

You should see a screen with the cluster and server similar to the one below:



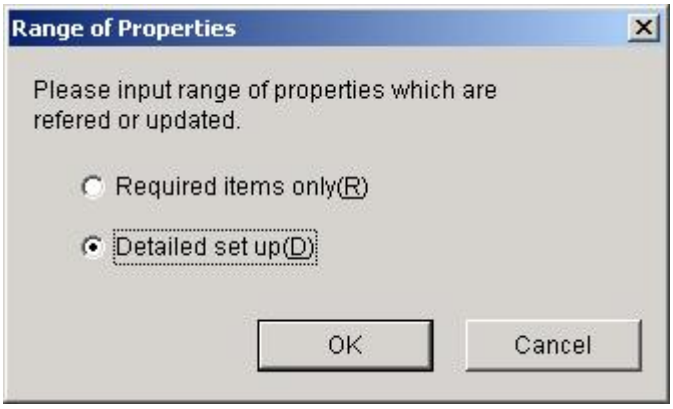
Configuring the Cluster Properties

Step 1:
Right click on the cluster icon (SRE-VCC) and select the *Property(P)* menu item:

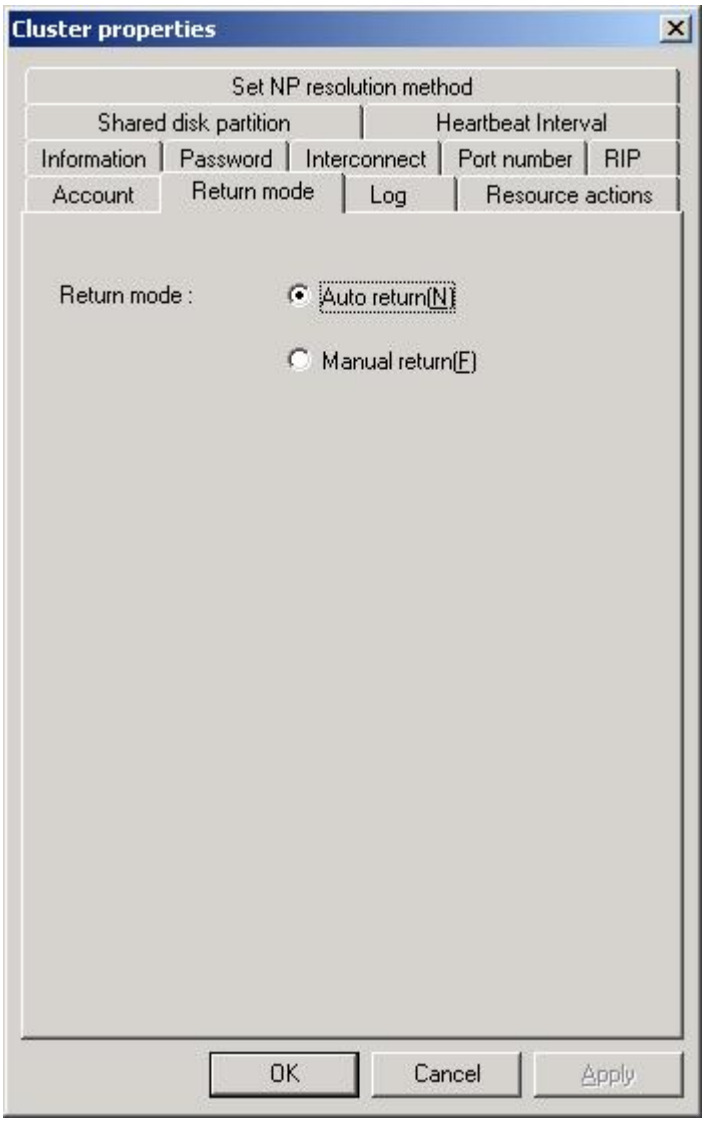

NEC ExpressCluster
Cluster(M) View(V) Control(C) AlertView(A) Tool(L) Help(H)
NEC ExpressCluster
Server name
Status
Description
Normal
Deregister cluster(D)
Return to cluster(V)
Add server(S)
Create group(U)
Shutdown(E)
Mirror disk helper(L)
Property(P)
Help(H)
Server time
From
Message
ID
2005/01/10 10:37:53 SRE-SRV A cluster is created. 2012
2005/01/10 10:37:53 SRE-SRV A network bind setting is inappropriate. 1312
2005/01/10 10:37:53 SRE-SRV A use term is till 2024/01/01. 2600
2005/01/10 10:38:57 [Cluster shutdown] has been done normally by this manager. 11
2005/01/10 10:38:57 SRE-SRV Shutdown the cluster. 2002
2005/01/10 10:44:21 SRE-SRV A use term is till 2024/01/01. 2600
2005/01/10 10:44:21 SRE-SRV NEC ExpressCluster Server Service has started properly. 1100
2005/01/10 10:44:21 SRE-SRV A network bind setting is inappropriate. 1312
2005/01/10 10:47:16 SRE-SRV Group SRE-GRP was added. 2016
2005/01/10 10:48:14 [Start group] has been done normally by this manager. 11
2005/01/10 10:48:19 SRE-SRV Group SRE-GRP was started on server SRE-SRV. 2007
2005/01/10 10:49:19 SRE-SRV Group SRE-GRP was stopped on server SRE-SRV. 2006
2005/01/10 10:49:46 SRE-SRV Group SRE-GRP was changed. 2018
2005/01/10 10:50:08 [Start group] has been done normally by this manager. 11
2005/01/10 10:50:12 SRE-SRV Group SRE-GRP was started on server SRE-SRV. 2007
Display or update properties of the cluster, server, or resource that you selected (Only display is avairable on resources)
Start
NEC ExpressCluster
11:33 AM

Step 2:
Click *Yes* below:

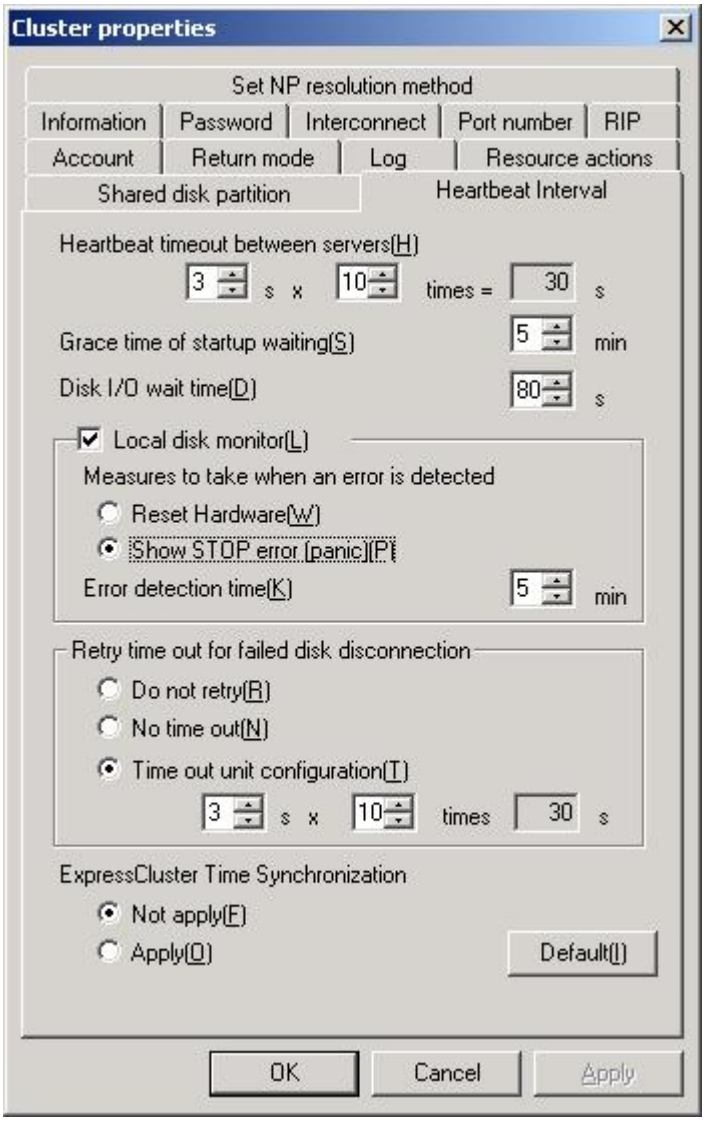
Step 3:
Select *Detailed set up(D)* and click OK



Step 4:
Select the *Return mode* tab, and select *Auto return(N)* as below:



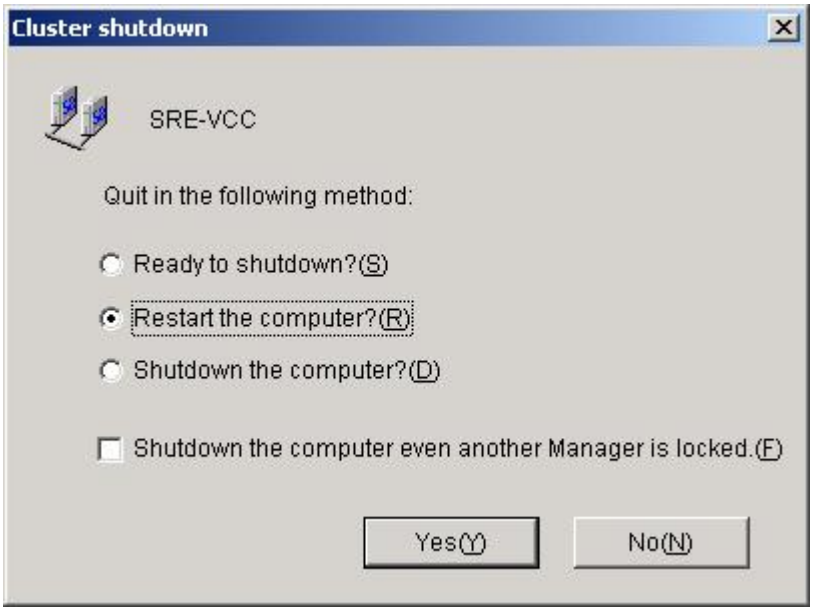
Step 5:
Select the *Heartbeat Interval* tab and select the *Show STOP error (panic)(P)* radio button and click *OK* as in the following screen:



Step 6:
Click *Yes* below:

Step 7:

Select *Restart the Computer?(R)* and click *Yes*:



Step 8:
Click *Yes:*

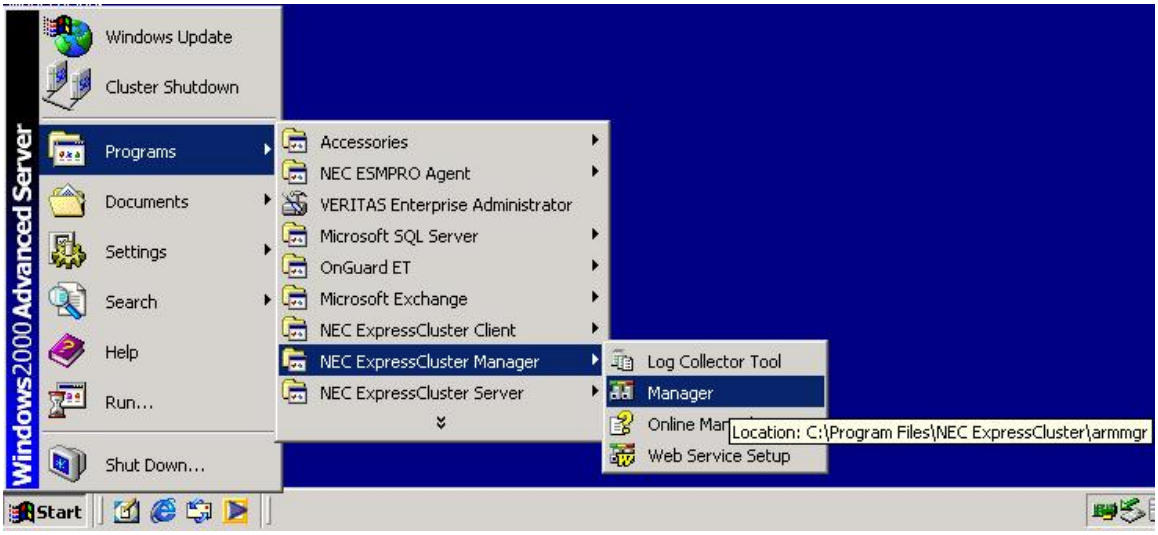
Step 9:
After the server reboots, start the command prompt (using *Start-> Programs->Accessories-> Command Prompt*) and type in the following command and hit enter:
armem /M reboot

You see the following text:
Command succeeded.

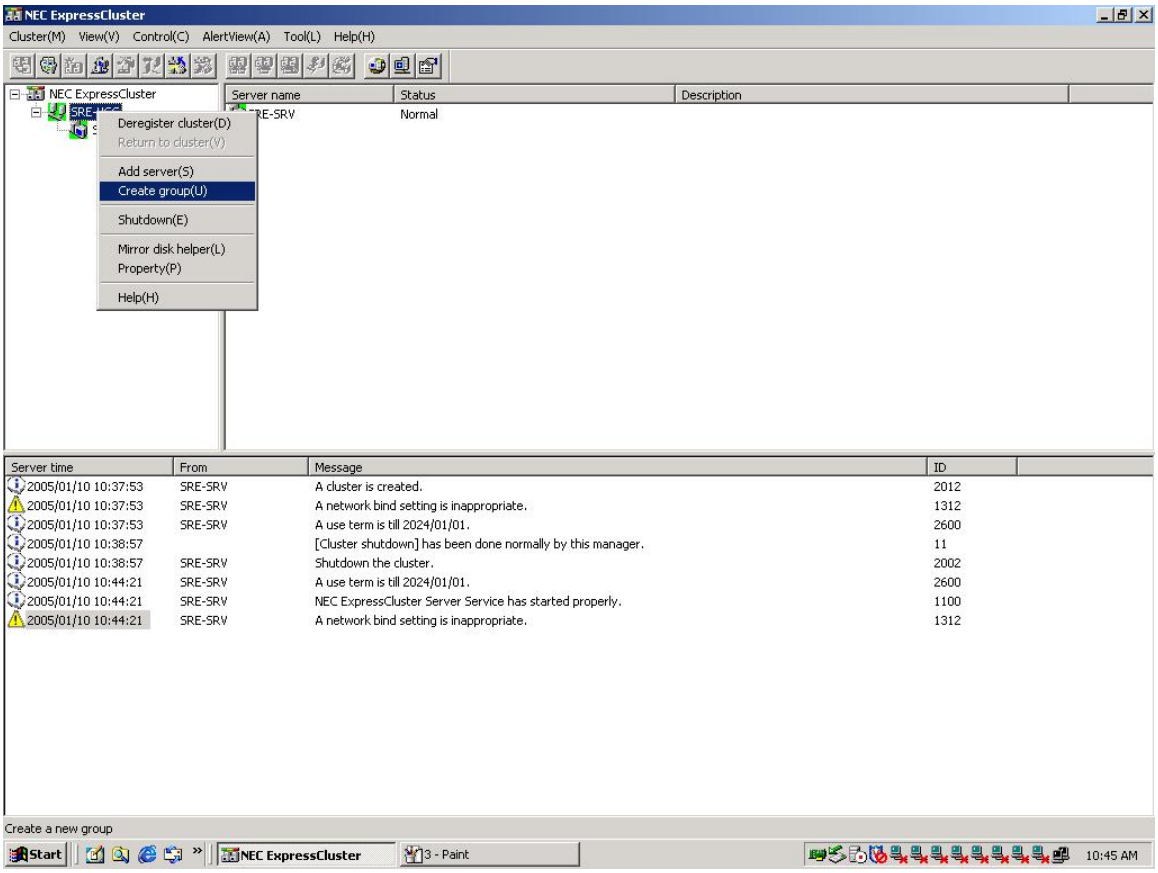
Note:
This command configures the server for automatic reboot incase a process terminates more than x times in y hours. These threshold values are specified using the armload command. Please see section ARMLOAD in Chapter 8 for the explanation of these threshold parameters.

Creating the Failover Group

Step 1:
Start the NEC ExpressCluster Manager using ***Start->Programs->NEC ExpressCluster Manager***

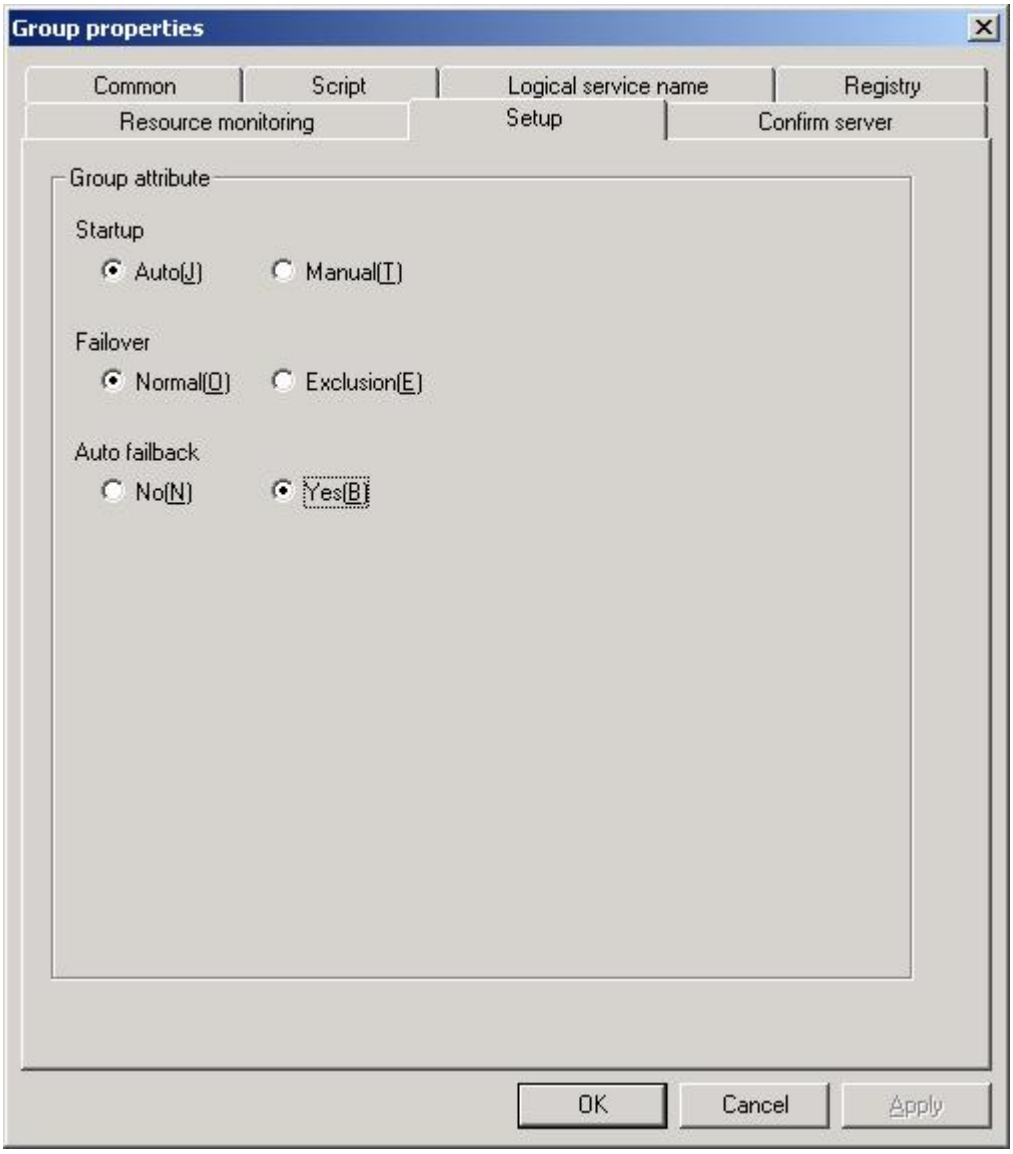


Step 2
Right click on the cluster icon and select *Create Group(U)* as below:

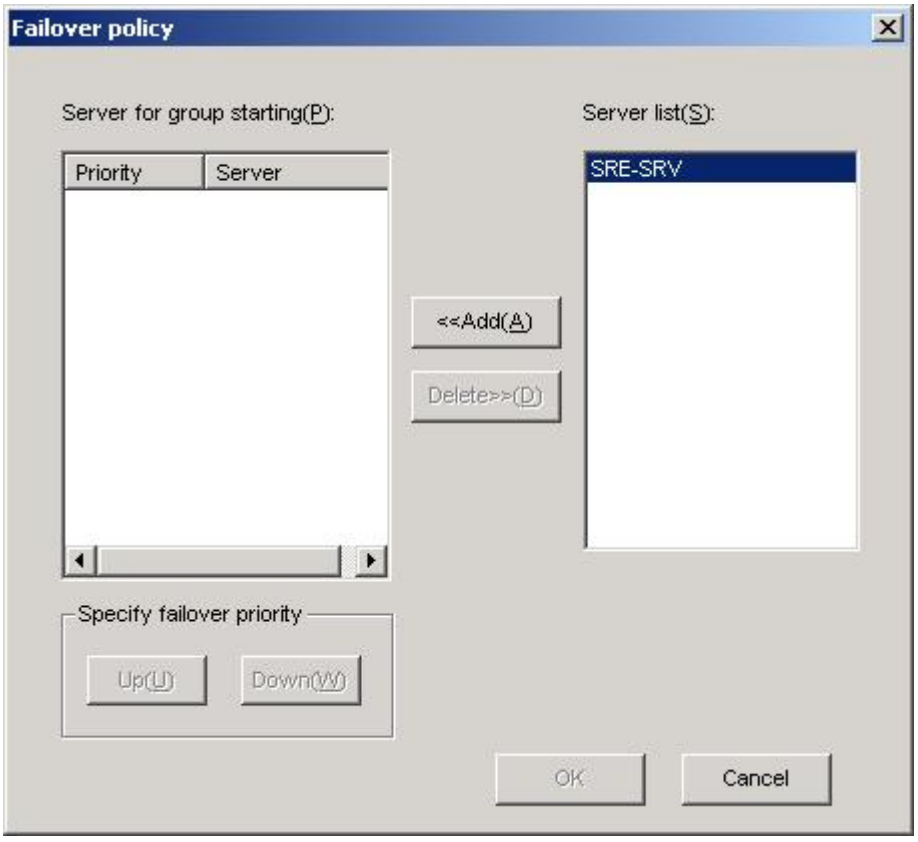


Step 3:
Enter the failover group name as say SRE-GRP and click *OK*:

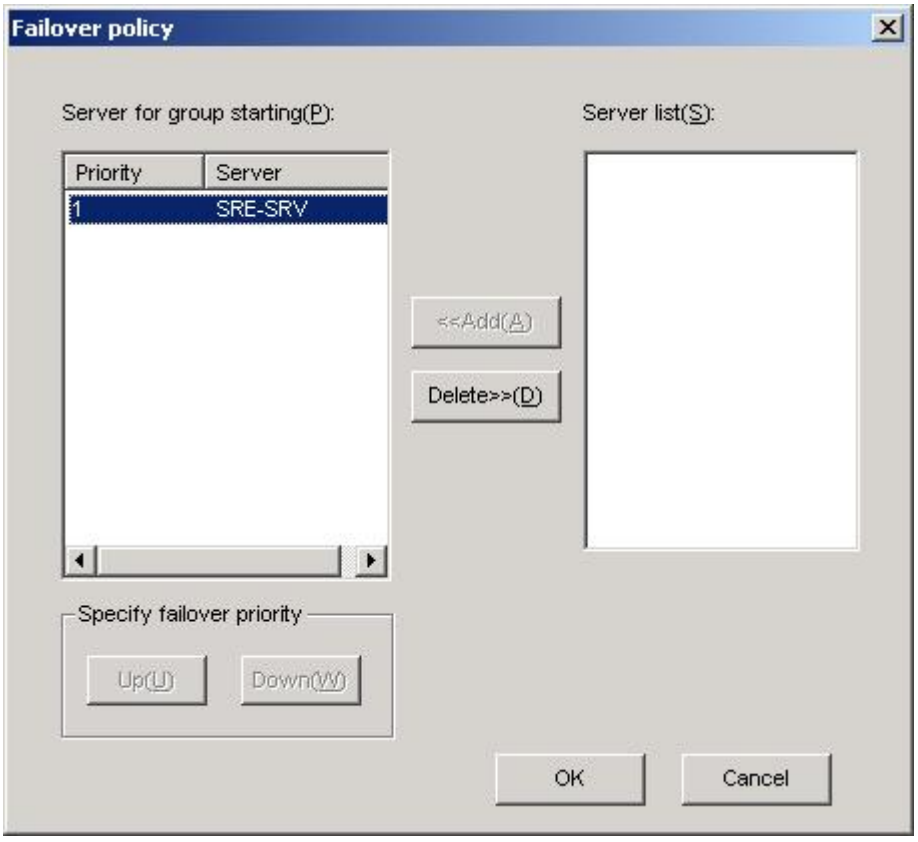
Step 4:
Select the *Setup* tab, select the *Yes(B)* radio button for *Auto failback* and click *OK*



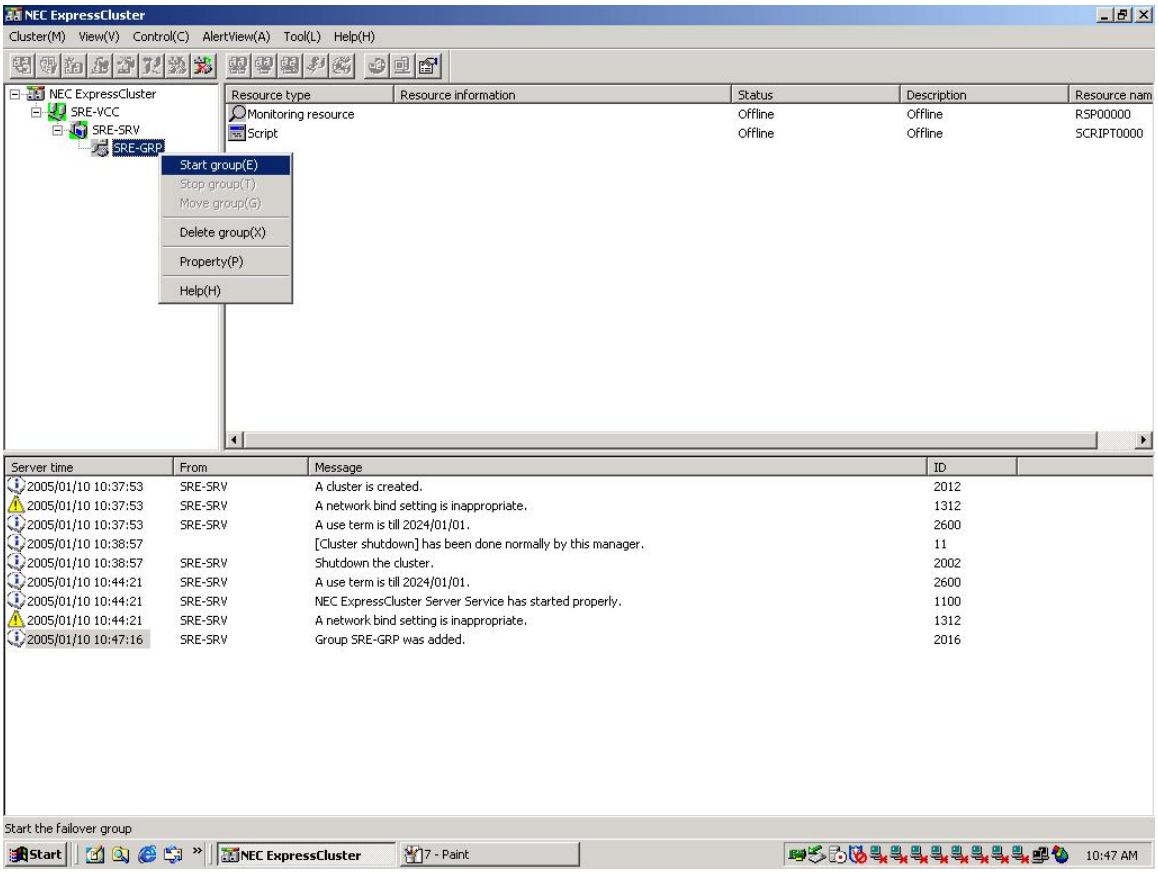
Step 5:
Select the server from the *Server list(S)* and click the <<*Add(A)* button:



Step 6:
Click OK on the following screen:

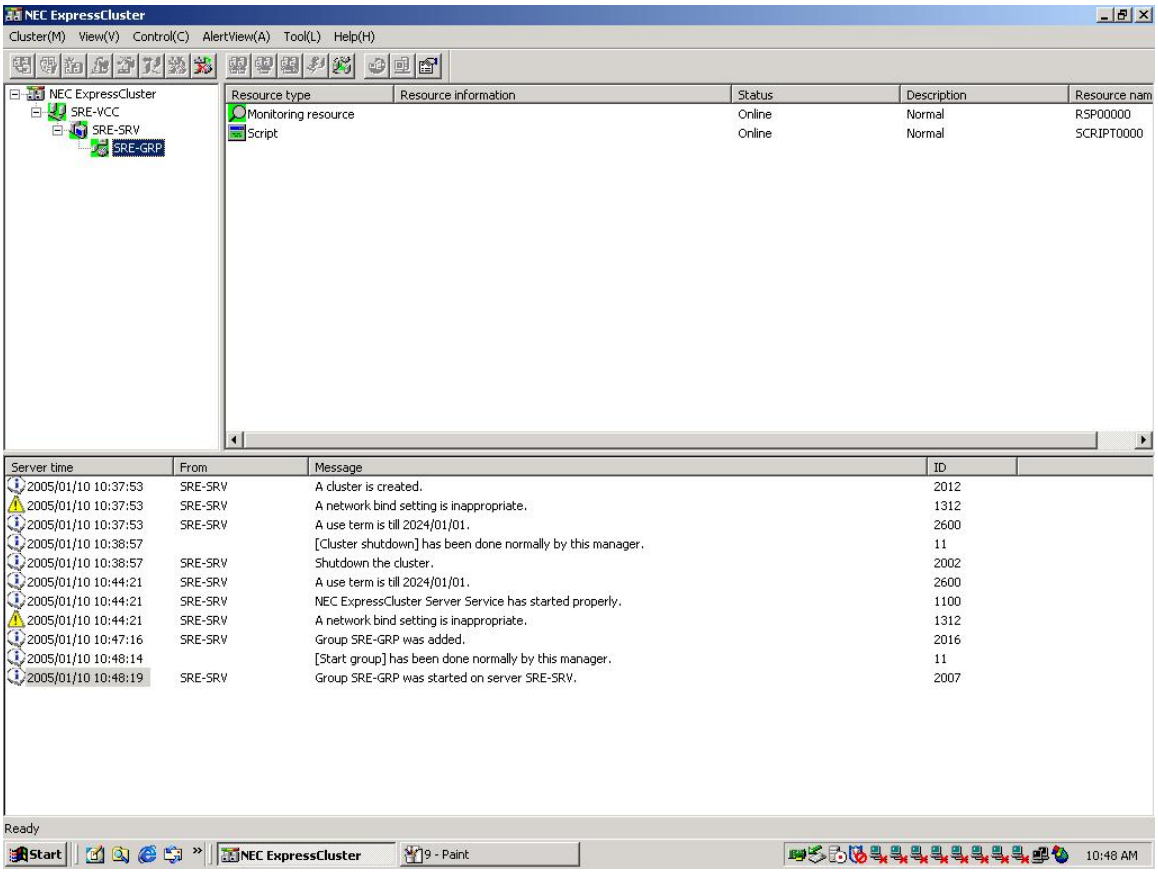


Step 7:
Right click on the failover group and start the group on the server by following the screen shots below:



Click *OK***:**

The Failover Group icon should be Green and all the resources should be Online as below:


NEC ExpressCluster
Cluster(M) View(V) Control(C) AlertView(A) Tool(L) Help(H)
NEC ExpressCluster
SRE-VCC
SRE-SRV
SRE-GRP
Resource type
Resource information
Status
Description
Resource nam
Monitoring resource
Online
Normal
RSP00000
Script
Online
Normal
SCRIPT0000
Server time
From
Message
ID
2005/01/10 10:37:53 SRE-SRV A cluster is created. 2012
2005/01/10 10:37:53 SRE-SRV A network bind setting is inappropriate. 1312
2005/01/10 10:37:53 SRE-SRV A use term is till 2024/01/01. 2600
2005/01/10 10:38:57 [Cluster shutdown] has been done normally by this manager. 11
2005/01/10 10:38:57 SRE-SRV Shutdown the cluster. 2002
2005/01/10 10:44:21 SRE-SRV A use term is till 2024/01/01. 2600
2005/01/10 10:44:21 SRE-SRV NEC ExpressCluster Server Service has started properly. 1100
2005/01/10 10:44:21 SRE-SRV A network bind setting is inappropriate. 1312
2005/01/10 10:47:16 SRE-SRV Group SRE-GRP was added. 2016
2005/01/10 10:48:14 [Start group] has been done normally by this manager. 11
2005/01/10 10:48:19 SRE-SRV Group SRE-GRP was started on server SRE-SRV. 2007
Ready
Start
NEC ExpressCluster
9 - Paint
10:48 AM

Chapter 4: Installation (Windows 2000)

Please follow the steps below to install the *NEC ExpressCluster SRE Server* and *NEC ExpressCluster SRE Manager*:

Step 1
Start the command prompt using *Start-> Command Prompt* and execute *auto_install.exe* in the ECLSRE sub-directory on the installation CD:

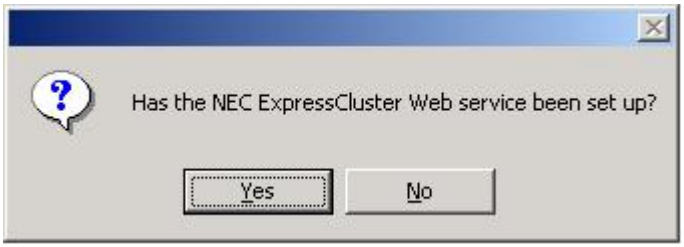
<CD-DIR>:\ECLSRE\auto_install.exe

The automatic installation process will take a few minutes and you may encounter a couple popup dialog boxes. These dialog boxes will close automatically and installation will continue. You do not need to execute any mouse clicks for any of these dialog boxes.

Step 2
If you see the following warning dialog box do not execute any mouse click. This dialog will close automatically and installation will continue.

snmp.exe - Unable To Locate DLL
The dynamic link library armlog.dll could not be found in the specified path C:\WINNT\System32;.;C:\WINNT\system32;C:\WINNT\system;C:\WINNT;C:\WINNT\system32;C:\WINNT;C:\WINNT\System32\Wbem;C:\ESM;C:\DMI\WIN32\bin;C:\ESM\AlertMan\Program;C:\Program Files\VERITAS\Volume Manager 3.1\;C:\Program Files\VERITAS\VERITAS Object Bus\bin;C:\Program Files\Microsoft SQL Server\80\Tools\BINN.
OK

Step 3
If you see the following warning dialog box do not execute any mouse click. This dialog will close automatically and installation will continue.



This completes the installation of NEC ExpressCluster SRE Server, Manager and the Microsoft Loopback adapter.

Chapter 5: Configuration (Windows 2000)

This chapter describes the one-time initial configuration procedure for NEC ExpressCluster SRE in the final deployment environment.

Computer Name Configuration

The computer name MUST be finalized before starting configuration of NEC ExpressCluster SRE.

If the computer name (as shown by running the “hostname” command) is changed from the factory setting then you MUST perform the following step:

Step 1
Start the command prompt (using *Start-> Programs- >Accessories-> Command Prompt),* type in the following command and hit <*Enter*>:

C:\Program Files\NEC ExpressCluster\tools\sreprep

The command will complete silently and no user input is required.

Default Loopback Adapter IP addresses

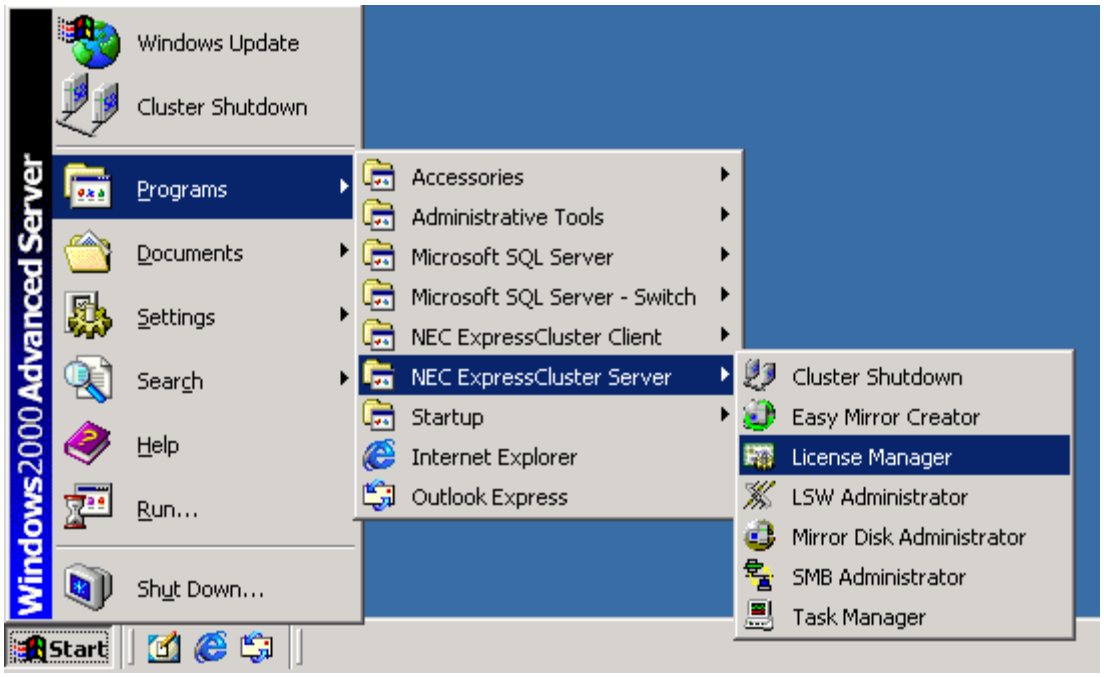
Following IP addresses are assigned as default addresses to the Loopback Adapter:

1. IP: 10.123.187.1 Subnet: 255.255.255.0
2. IP: 192.168.93.1 Subnet: 255.255.255.0 *(To be used as the Primary Interconnect IP address)*

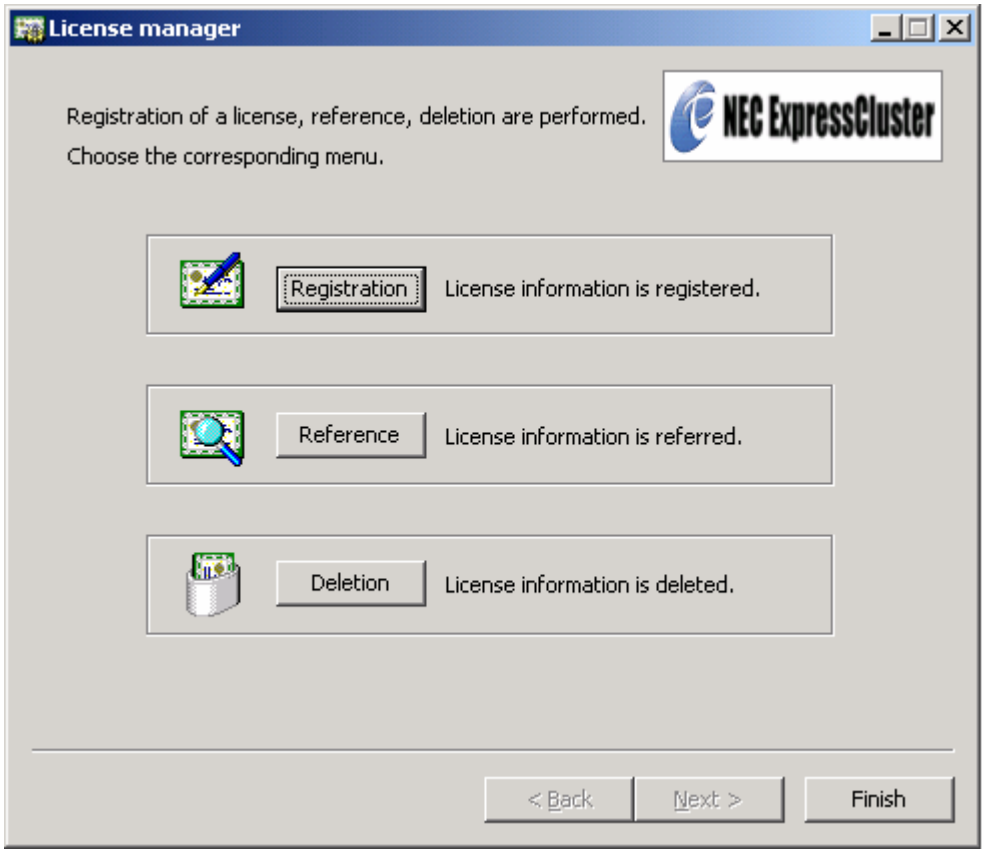
If you need to modify these IP addresses, please refer to Appendix A: Modifying IP Addresses

Register License

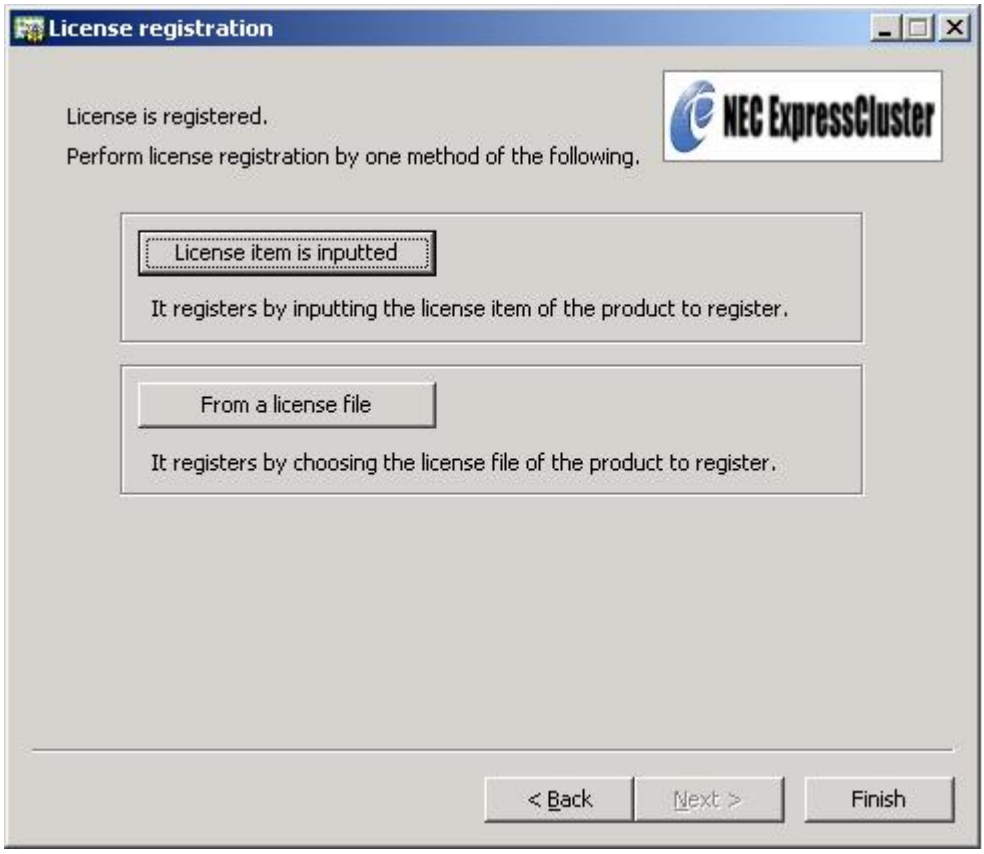
Step 1:
Start *“License Manager”* from *Start->Programs->NEC ExpressCluster Server -> License Manager*.



Step 2:
Click the *[Registration]* button.

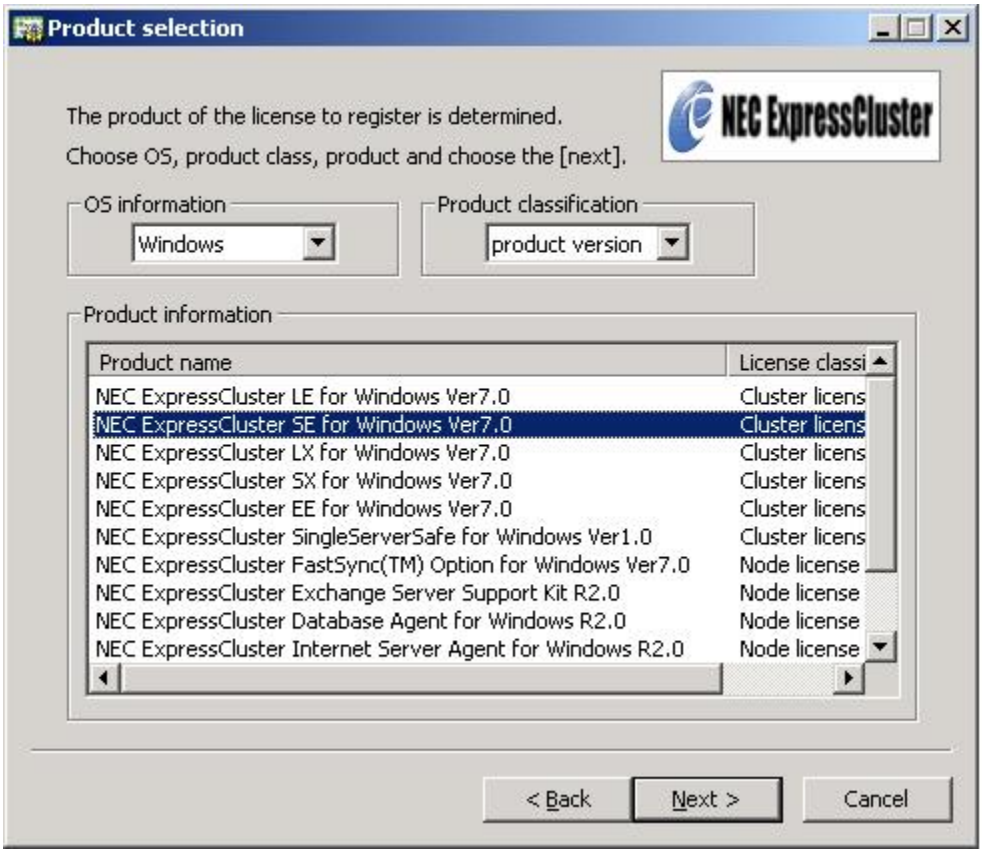


Step 3:
Click the *[License item is inputted]* button.


License registration
License is registered.
Perform license registration by one method of the following.
NEC ExpressCluster
License item is inputted
It registers by inputting the license item of the product to register.
From a license file
It registers by choosing the license file of the product to register.
< Back
Next >
Finish

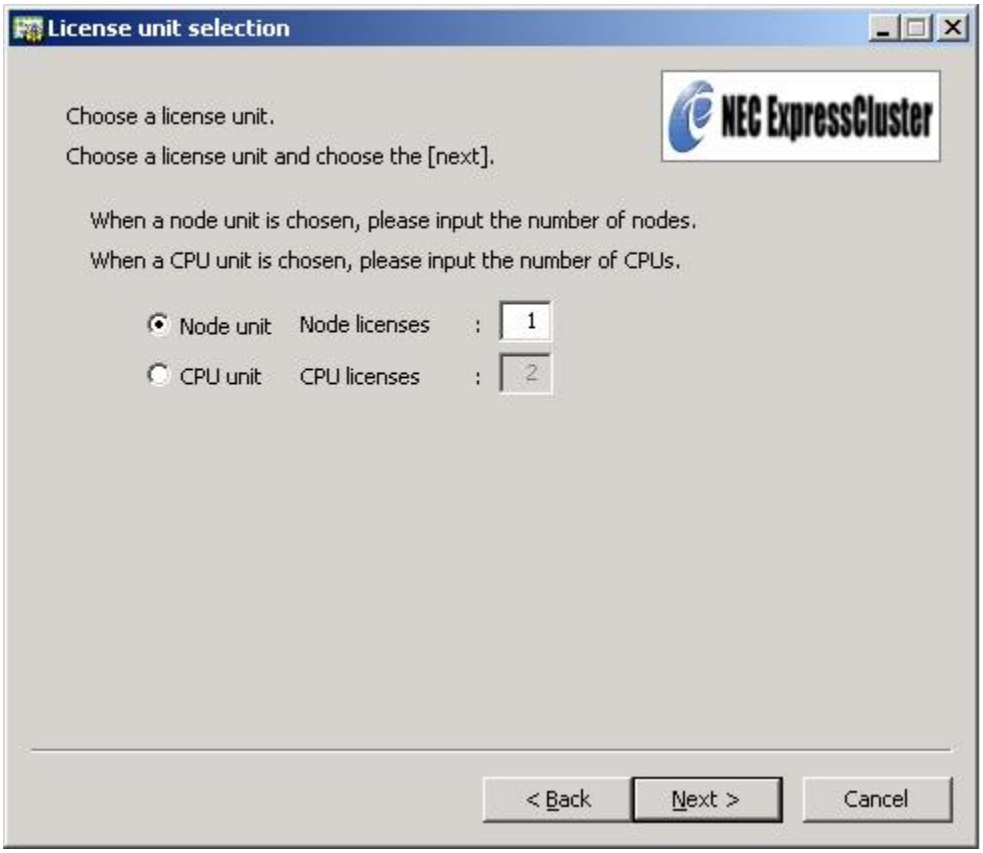
Step 4:

Select *Windows* for the OS information, *product version* for the Product Classification, *NEC ExpressCluster SE for Windows Ver7.0 - Cluster License* for the Product name and click *Next* as shown below:



Step 5:

Select the *Node unit* radio button, type in *1* as the Node licenses number and click *Next*:

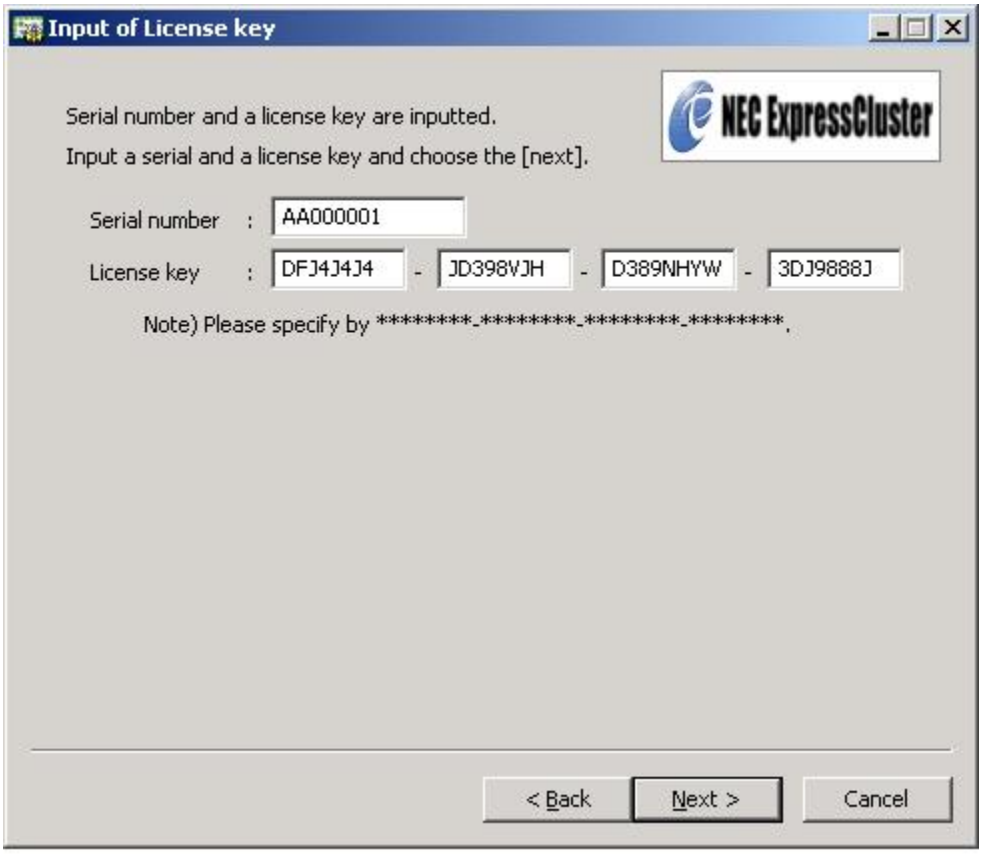


Step 6:

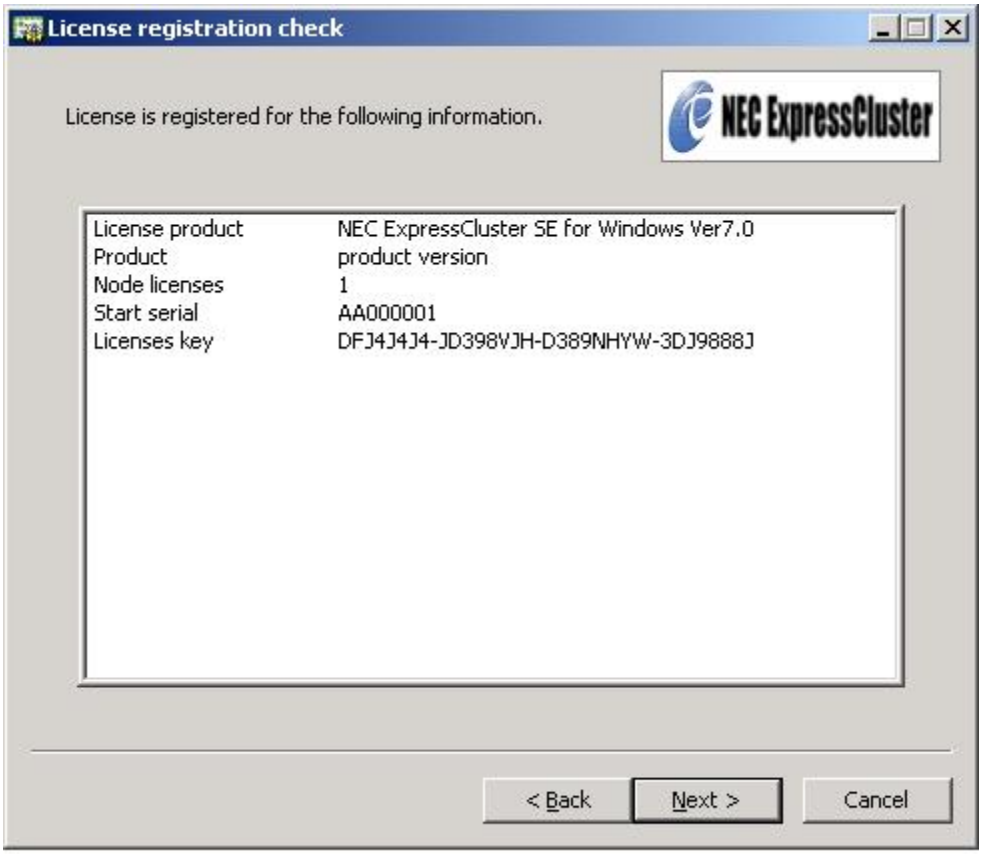
Locate the ExpressCluster SRE License Key at the back of the server along the edge as indicated in following figure:

Step 7:

Type in the *Serial number* (as indicated by *S/N: AA000001* above) and the K*ey* (as indicated by *Key: DFJ4J4J4-JD398VJH-D389NHYW-3DJ9888J* above) and click *Next*:


Input of License key
Serial number and a license key are inputted.
Input a serial and a license key and choose the [next].
NEC ExpressCluster
Serial number : AA000001
License key : DFJ4J4J4 - JD398VJH - D389NHYW - 3DJ9888J
Note) Please specify by ********-********-********-********.
< Back
Next >
Cancel

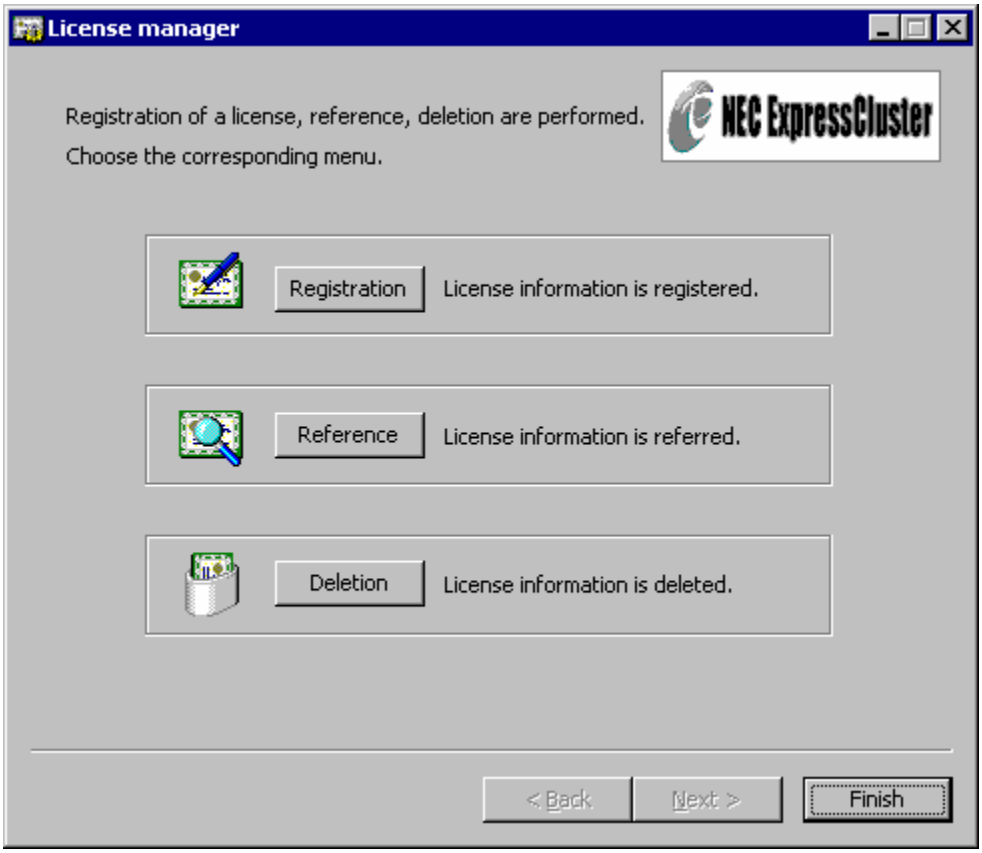
Step 8:
Confirm the license information and click *Next* on the following screen:



Step 9:

Check to see that the message "*The license was registered.*" appears. Now you have finished license registration.

Step 10:
Click *Finish* on the following screen:



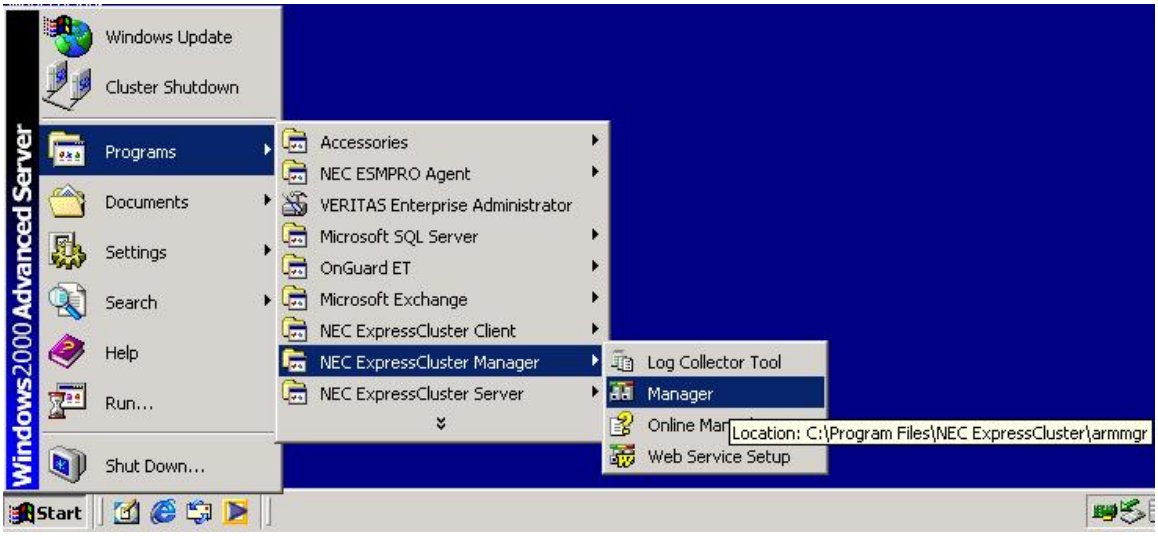
Starting the NEC ExpressCluster Server Service

Please execute the following step to start the NEC ExpressCluster Server service:

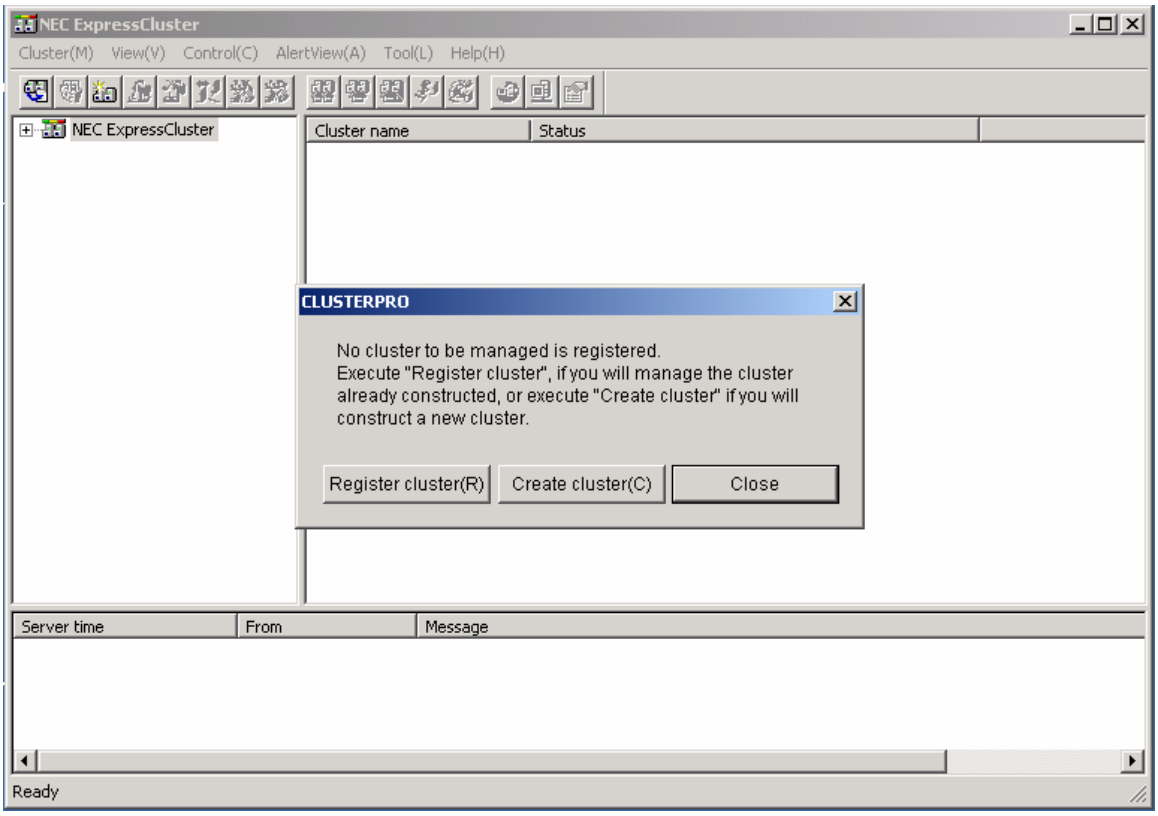
Step 1:
The default value by the installation for the "*NEC EXPRESSCLUSTER Server*" service is *[Manual]* startup. Change it to *[Automatic]* startup using *Start-> Settings-> Control Panel-> Administrative Tools-> Services* and *Start* the service.

Creating a Cluster

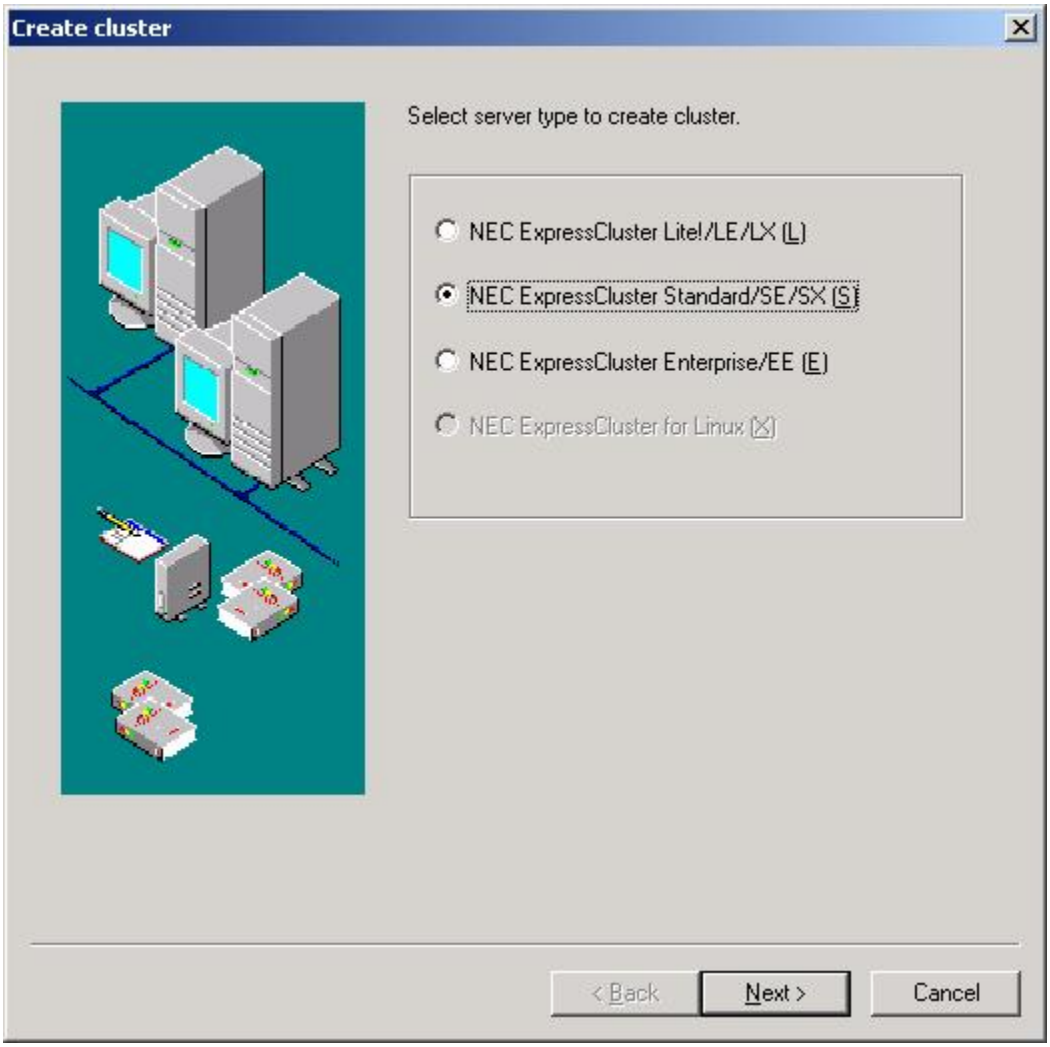
Step 1:
Start the NEC ExpressCluster Manager using *Start->Programs->NEC ExpressCluster Manager*



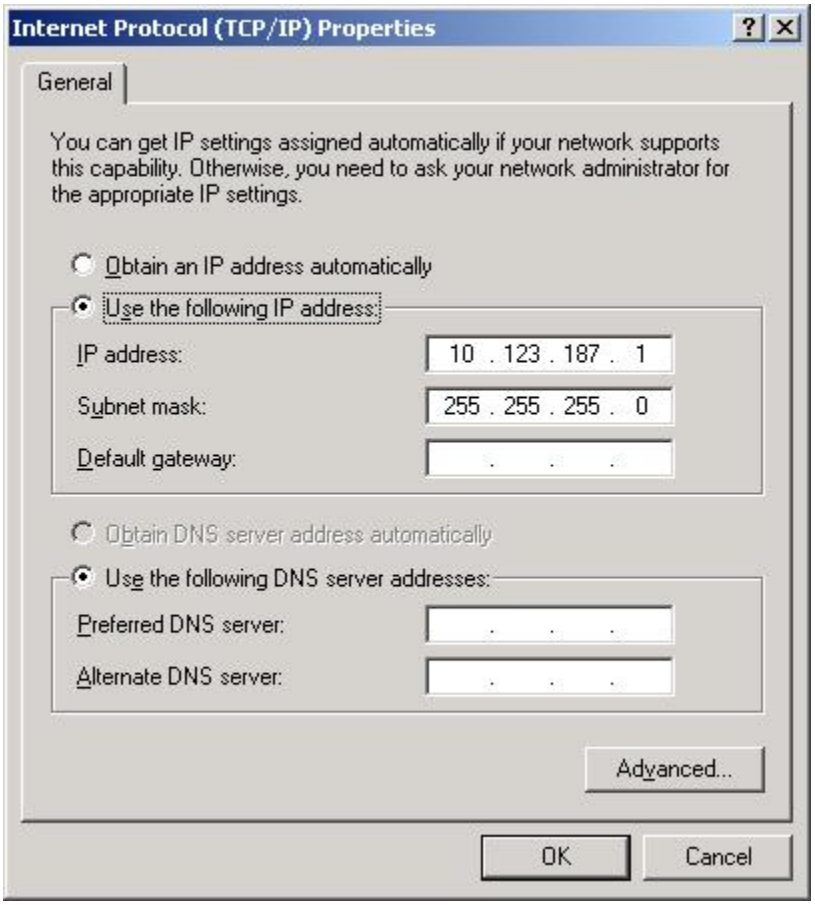
Step 2:
Click the *Create cluster(C)* button on the following screen:



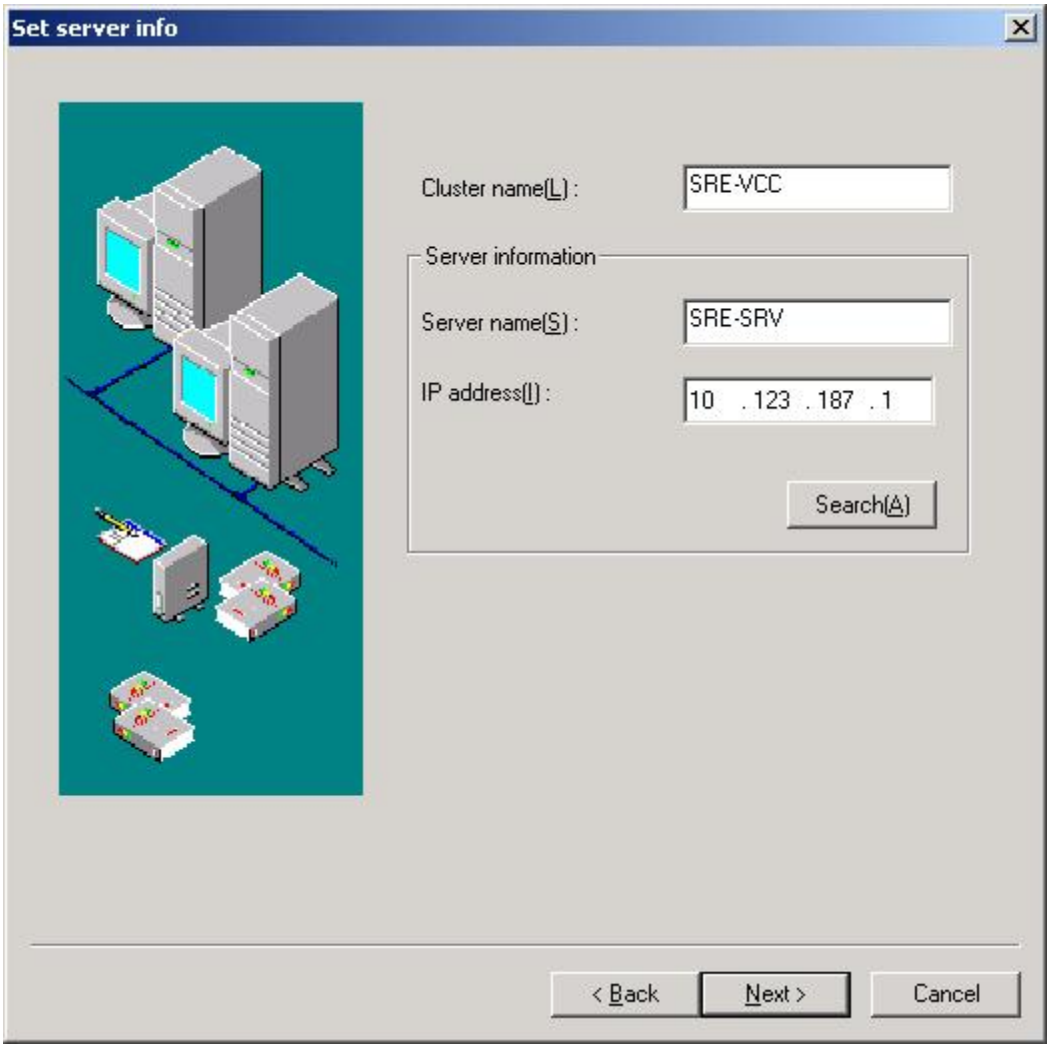
Step 3:
Select *NEC ExpressCluster Standard/SE/SX (S)* and click *Next* on the following screen:



Step 4:
Type in a cluster name (e.g. SRE-VCC), the computer name of the server (e.g. SRE-SRV) and first IP address (e.g. 10.123.187.1). This is the IP address that you see in the properties of your Network Interface as below:

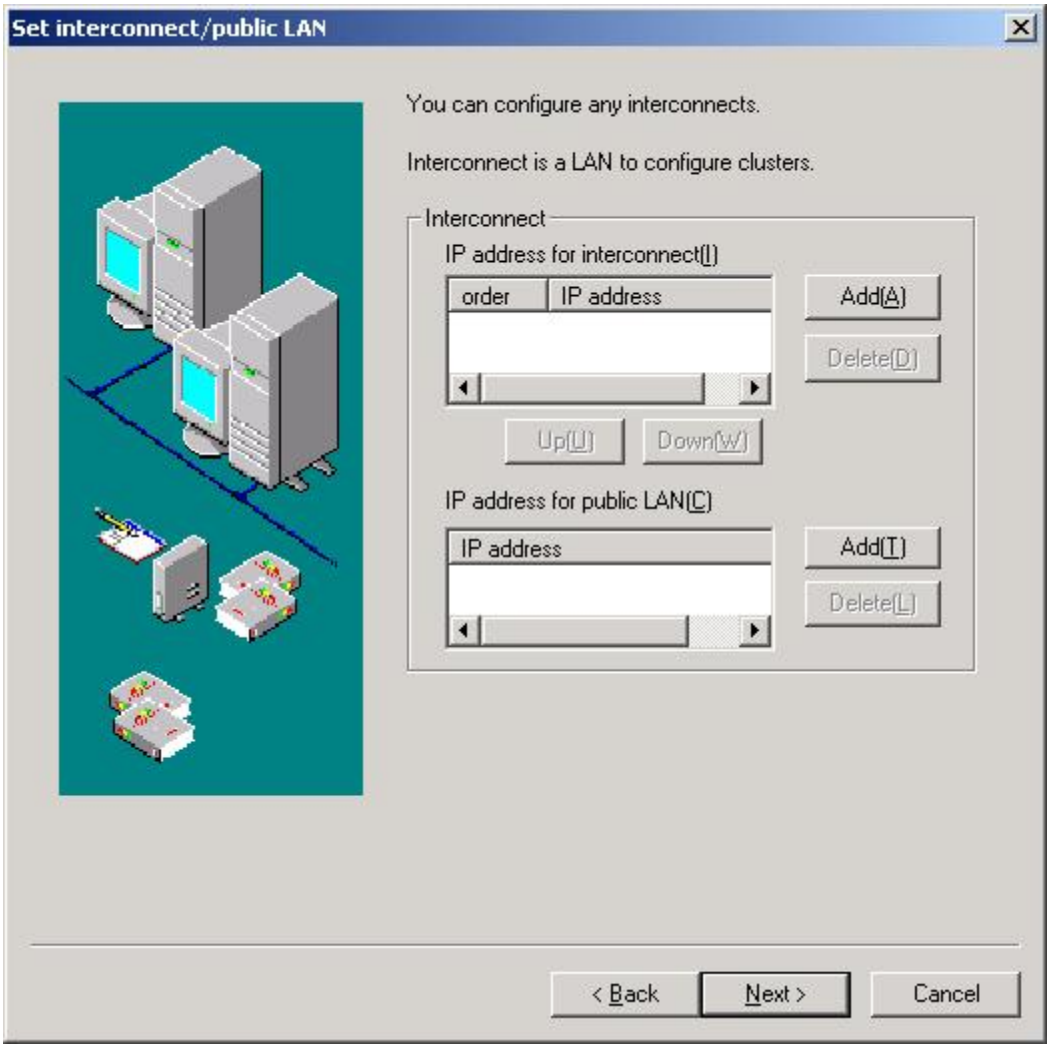

Internet Protocol (TCP/IP) Properties
General
You can get IP settings assigned automatically if your network supports this capability. Otherwise, you need to ask your network administrator for the appropriate IP settings.
Obtain an IP address automatically
Use the following IP address:
IP address:
10 . 123 . 187 . 1
Subnet mask:
255 . 255 . 255 . 0
Default gateway:
Obtain DNS server address automatically
Use the following DNS server addresses:
Preferred DNS server:
Alternate DNS server:
Advanced...
OK
Cancel

Note:
Up to 15 characters are allowed for the cluster name. Please do not use a cluster name which is same as the computer name.



Click *Next*:

Step 5:
On the following screen click the *Add (A)* button:

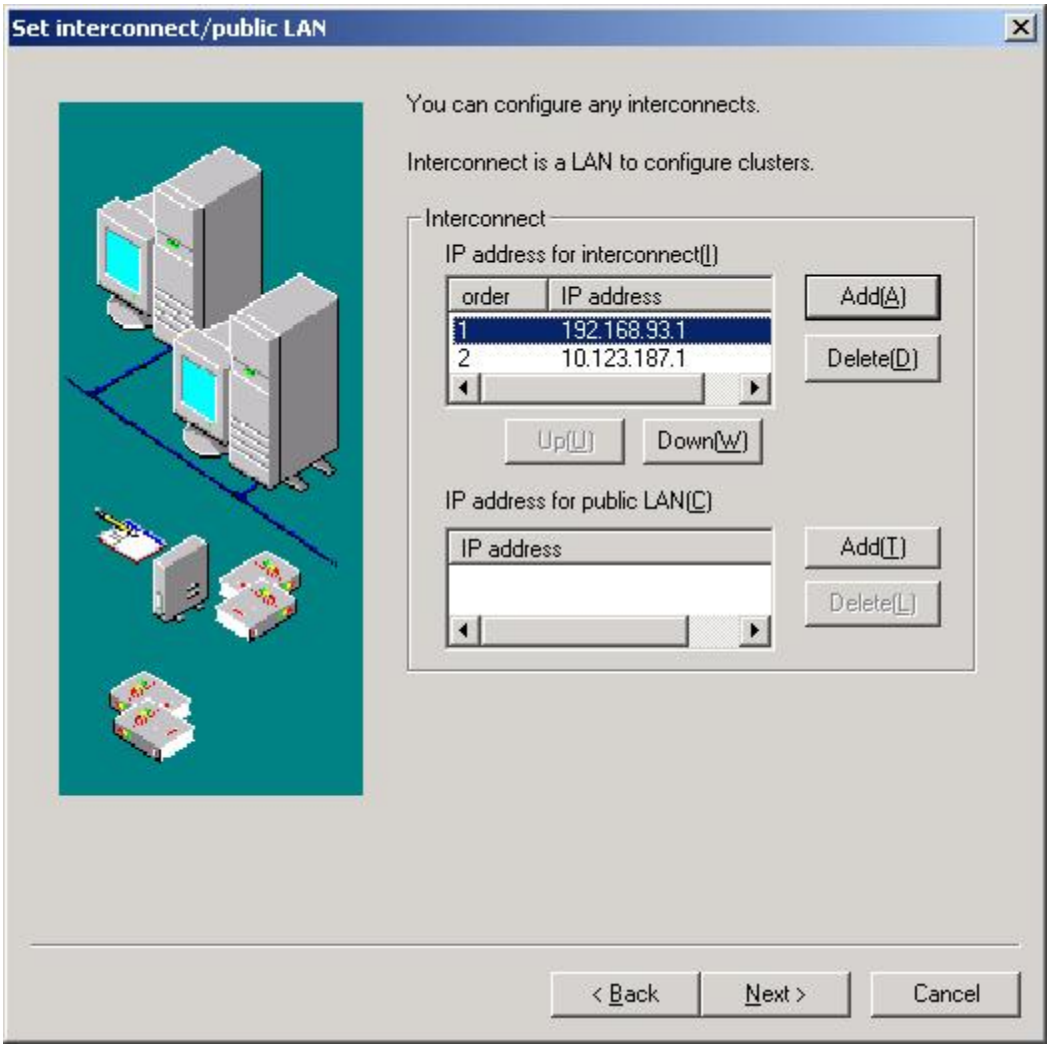


Step 6:
Select the ***second IP address*** which would be used as Primary Interconnect ***first (DO NOT SELECT THE IP ADDRESS AS IN STEP 4 ABOVE).*** In this case select 192.168.93.1 as below:

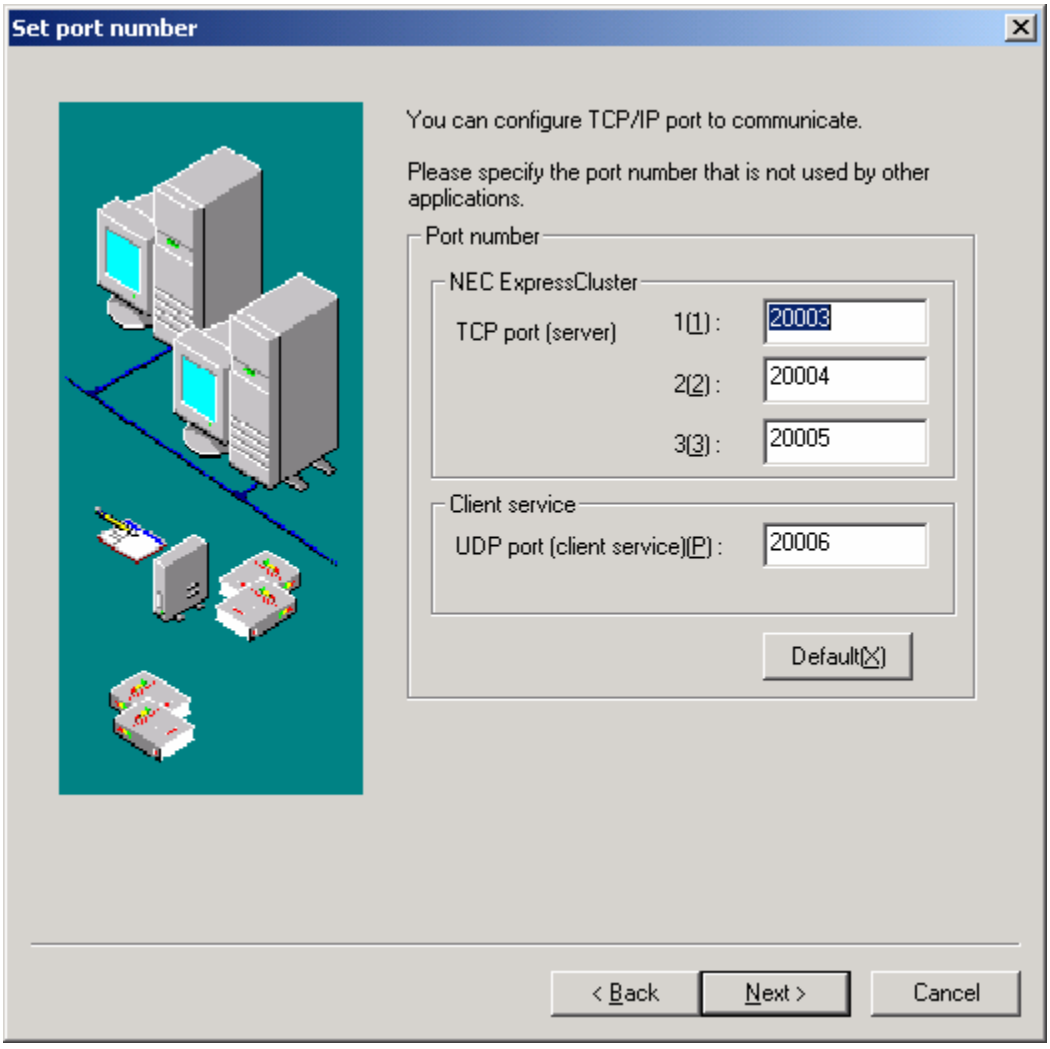
Click *OK*. Then click on *Add (A)* again and add ***first IP address*** as in *Step 4* above. Following is the image:

Click *OK*

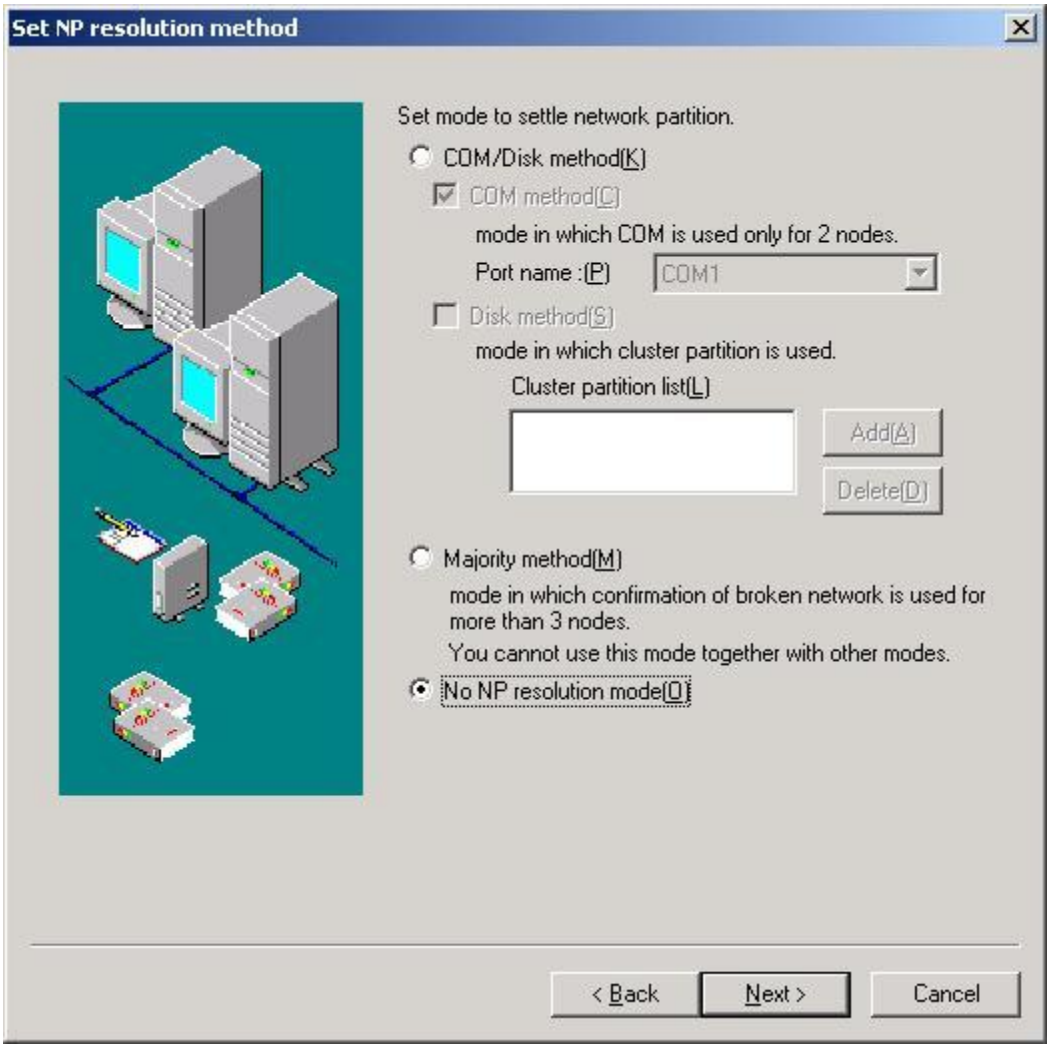
Step 7:
Click *Next* on the following screen:



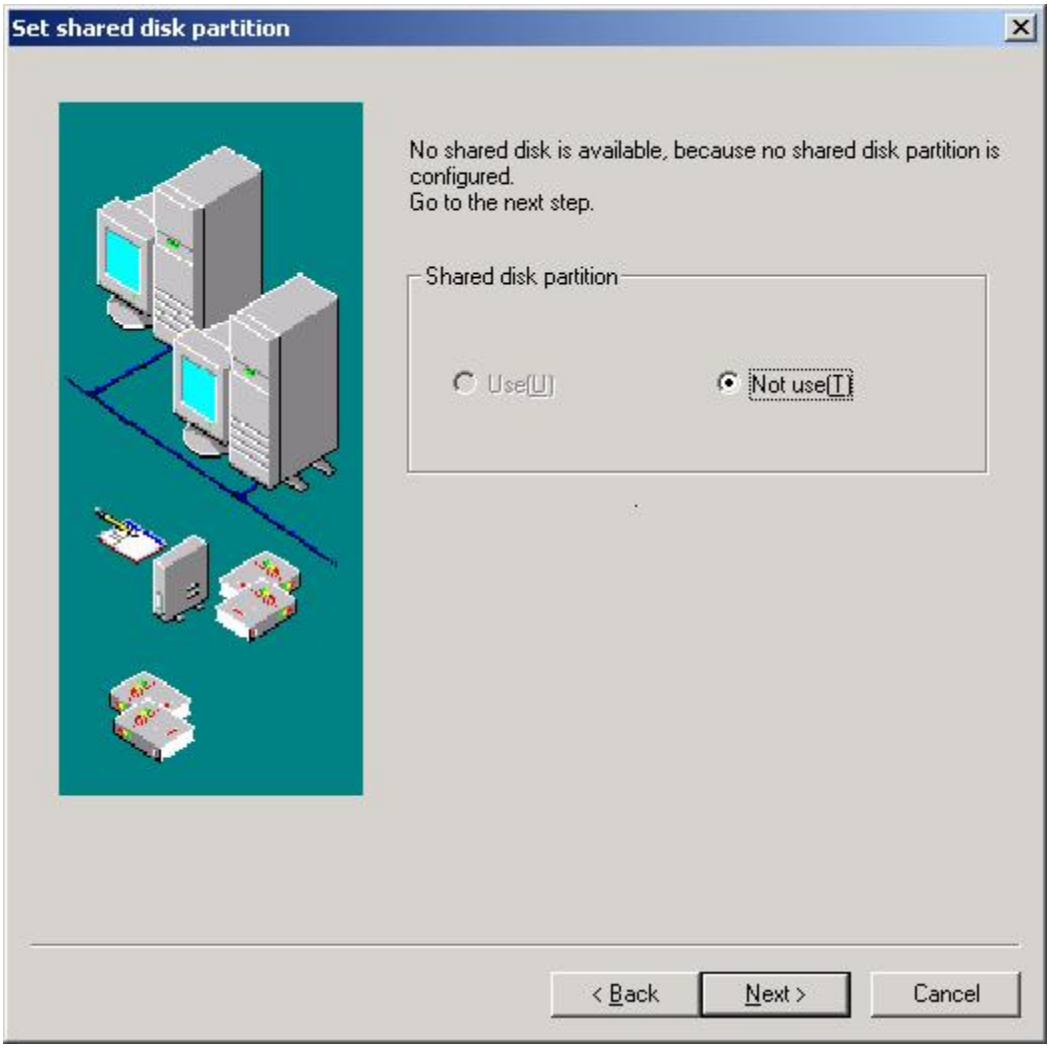
Step 8:
Click *Next* on the screen below:



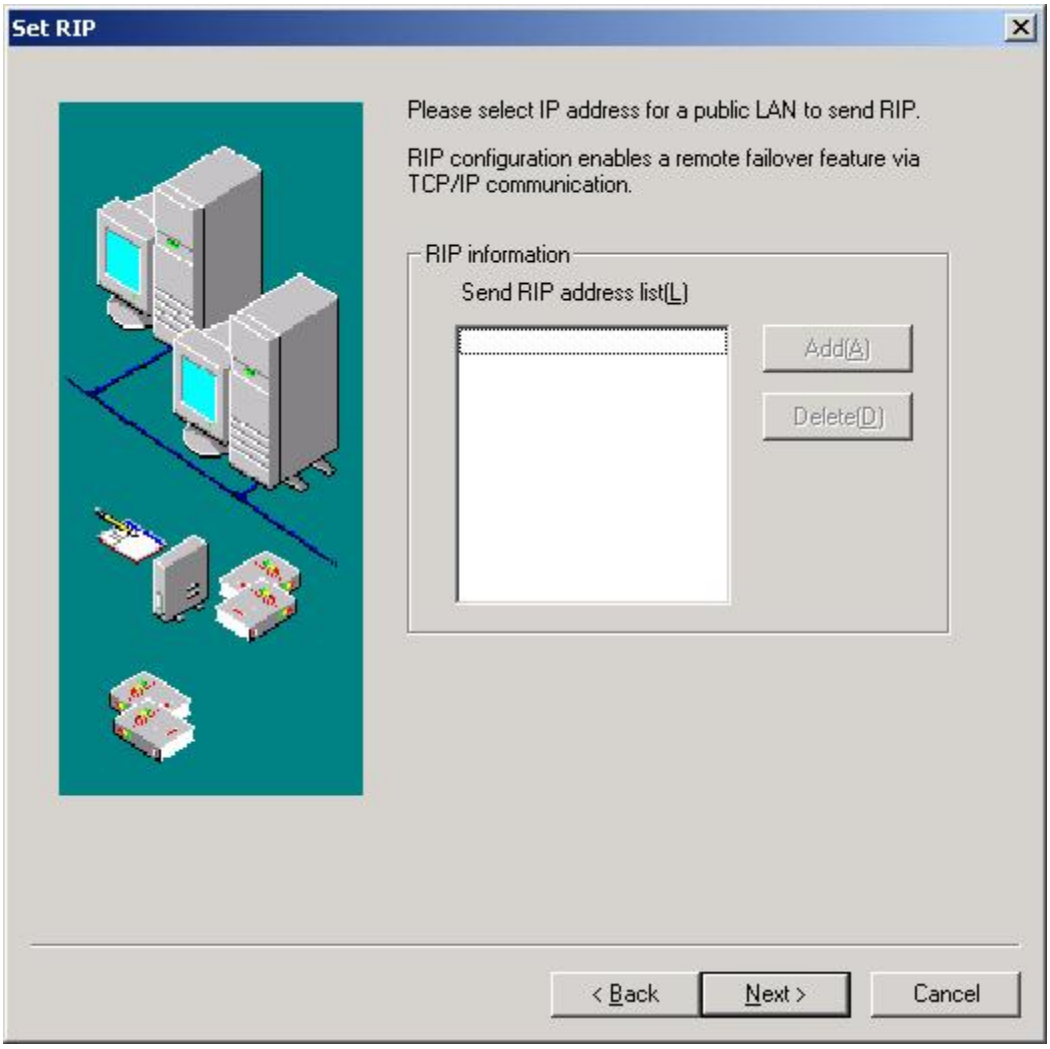
Step 9:
Select *No NP resolution mode(O)* and click *Next* on the screen below:


Set NP resolution method
Set mode to settle network partition.
COM/Disk method(K)
COM method(C)
mode in which COM is used only for 2 nodes.
Port name :(P)
COM1
Disk method(S)
mode in which cluster partition is used.
Cluster partition list(L)
Add(A)
Delete(D)
Majority method(M)
mode in which confirmation of broken network is used for more than 3 nodes.
You cannot use this mode together with other modes.
No NP resolution mode(O)
< Back
Next >
Cancel

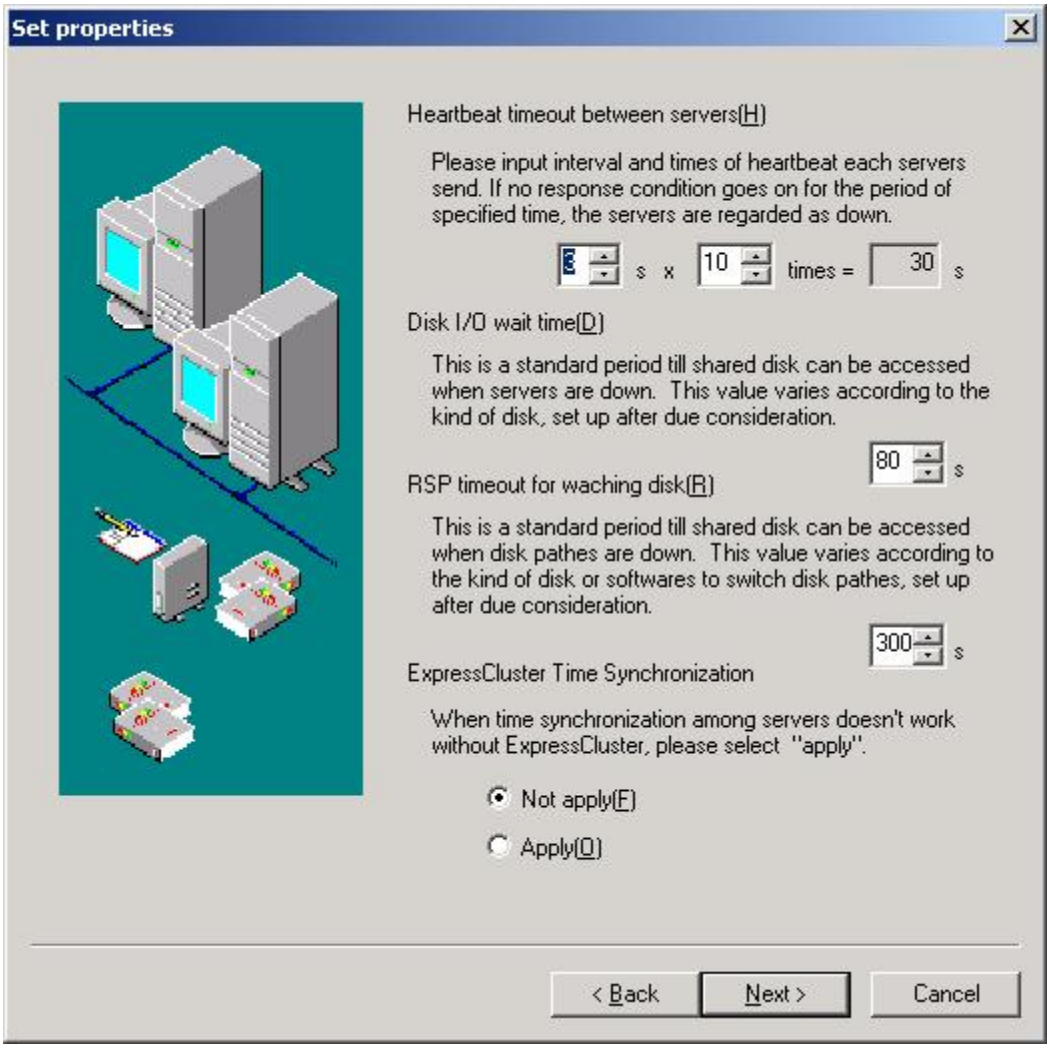
Step 10:
Click *Next* on the screen below:


Set shared disk partition
No shared disk is available, because no shared disk partition is configured.
Go to the next step.
Shared disk partition
Use(U)
Not use(T)
< Back
Next >
Cancel

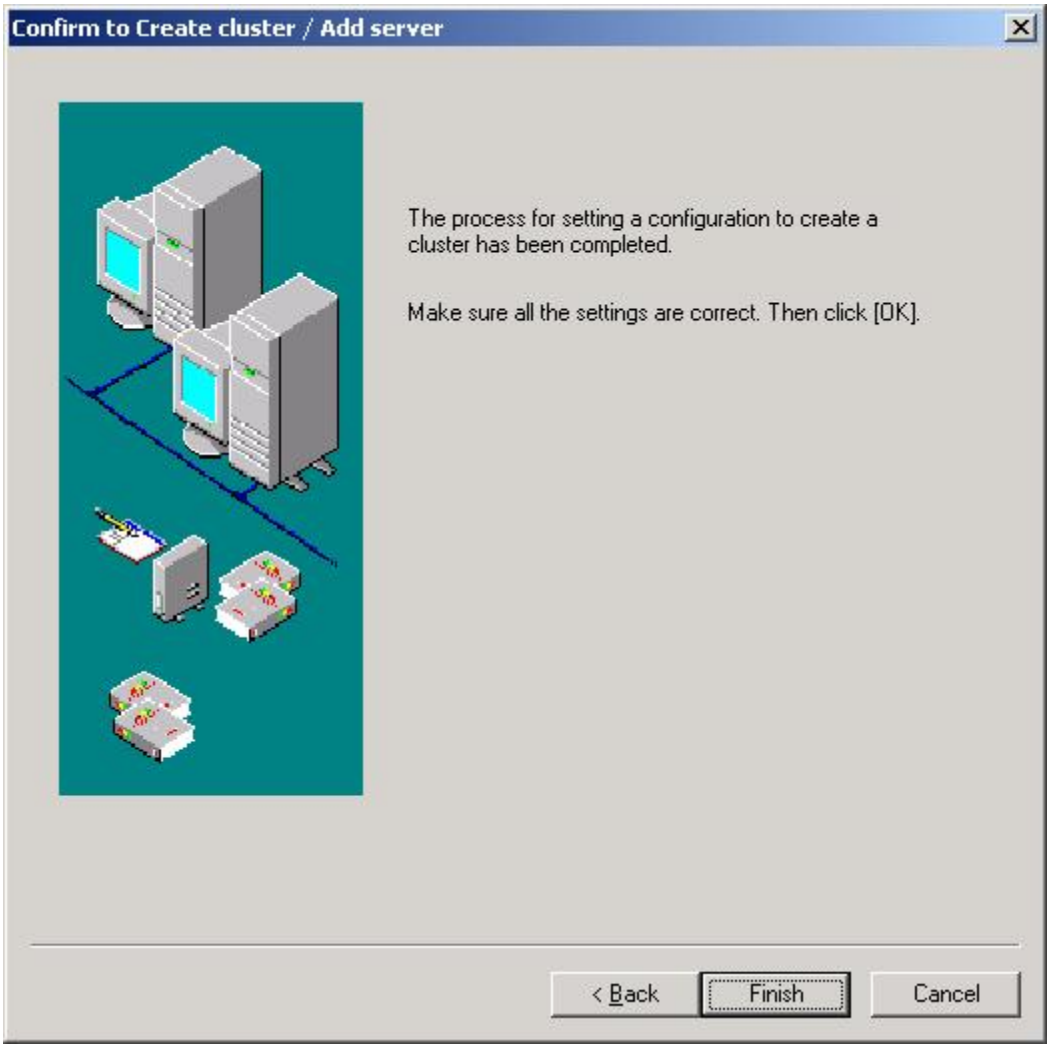
Step 11
Click *Next* on the screen below:


Set RIP
Please select IP address for a public LAN to send RIP.
RIP configuration enables a remote failover feature via TCP/IP communication.
RIP information
Send RIP address list(L)
Add(A)
Delete(D)
< Back
Next >
Cancel

Step 12
Click *Next* on the screen below:

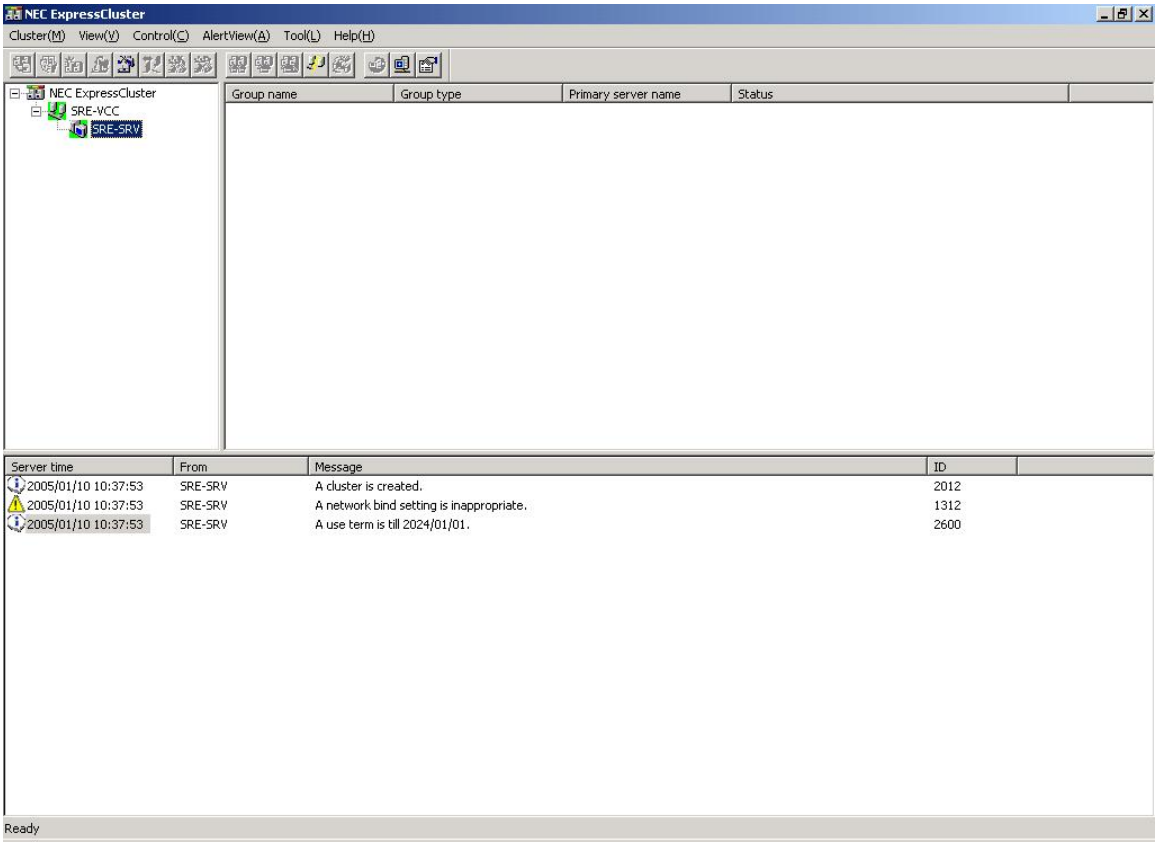

Set properties
Heartbeat timeout between servers(H)
Please input interval and times of heartbeat each servers send. If no response condition goes on for the period of specified time, the servers are regarded as down.
3 s x 10 times = 30 s
Disk I/O wait time(D)
This is a standard period till shared disk can be accessed when servers are down. This value varies according to the kind of disk, set up after due consideration.
80 s
RSP timeout for waching disk(R)
This is a standard period till shared disk can be accessed when disk pathes are down. This value varies according to the kind of disk or softwares to switch disk pathes, set up after due consideration.
300 s
ExpressCluster Time Synchronization
When time synchronization among servers doesn't work without ExpressCluster, please select "apply".
Not apply(F)
Apply(O)
< Back
Next >
Cancel

Step 13
Click *Finish* on the screen below:


Confirm to Create cluster / Add server
The process for setting a configuration to create a cluster has been completed.
Make sure all the settings are correct. Then click [OK].
< Back
Finish
Cancel

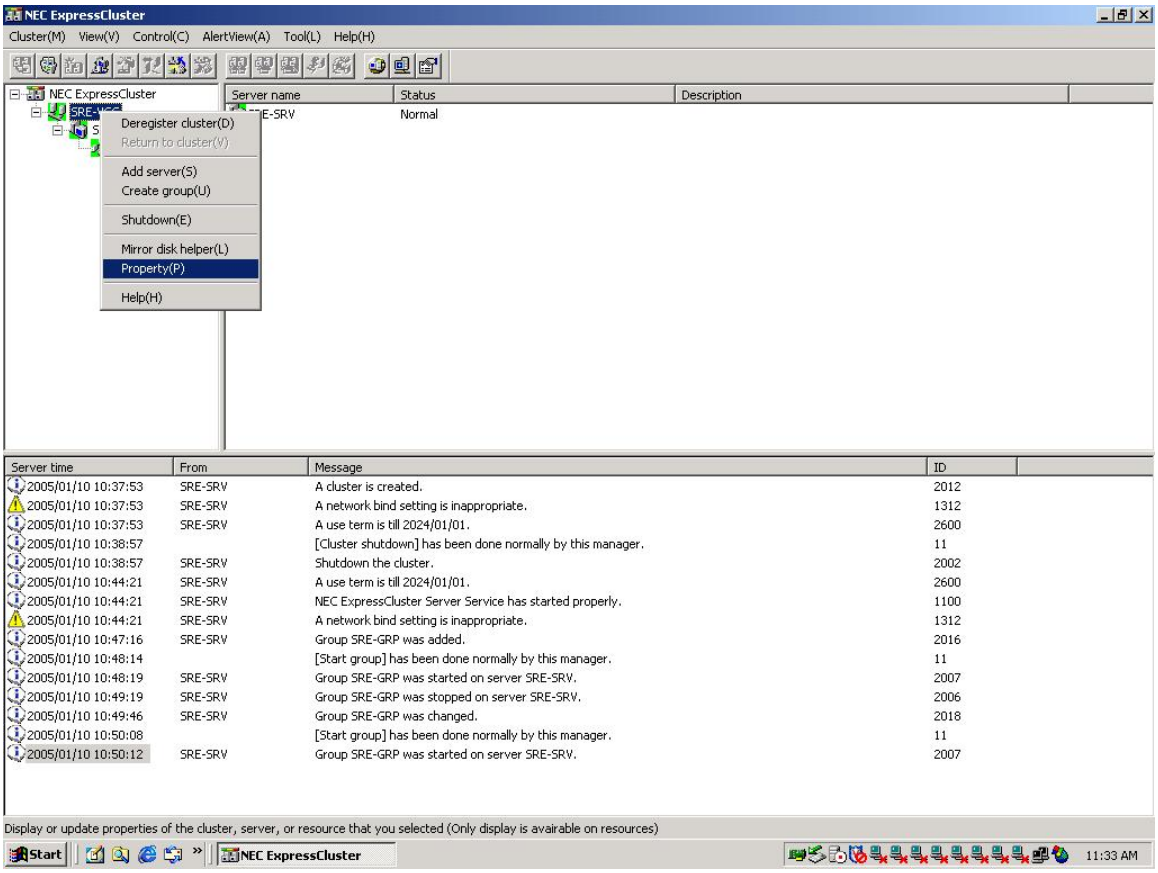
Step 14
Click *OK* on the screen below:

You should see a screen with the cluster and server similar to the one below:



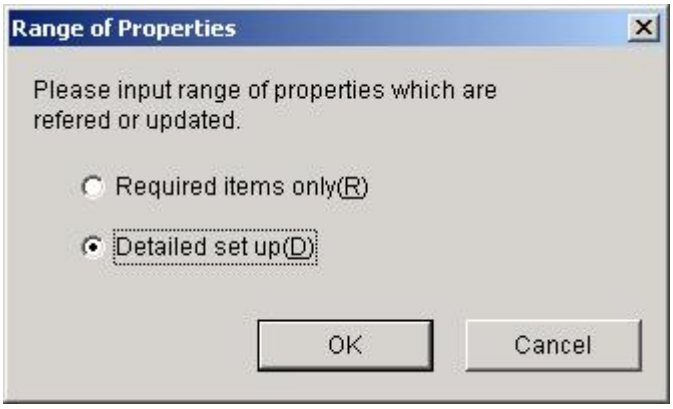
Configuring the Cluster Properties

Step 1:
Right click on the cluster icon (SRE-VCC) and select the *Property(P)* menu item:

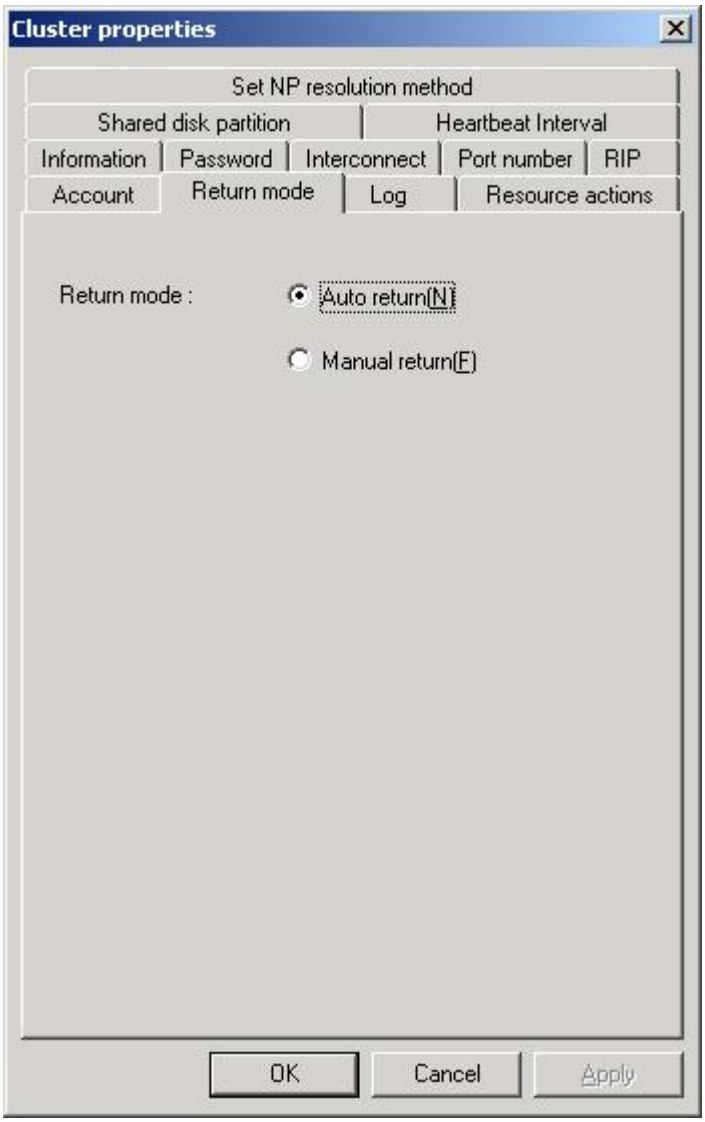

NEC ExpressCluster
Cluster(M) View(V) Control(C) AlertView(A) Tool(L) Help(H)
NEC ExpressCluster
Server name
Status
Description
Normal
Deregister cluster(D)
Return to cluster(V)
Add server(S)
Create group(U)
Shutdown(E)
Mirror disk helper(L)
Property(P)
Help(H)
Server time
From
Message
ID
2005/01/10 10:37:53 SRE-SRV A cluster is created. 2012
2005/01/10 10:37:53 SRE-SRV A network bind setting is inappropriate. 1312
2005/01/10 10:37:53 SRE-SRV A use term is till 2024/01/01. 2600
2005/01/10 10:38:57 [Cluster shutdown] has been done normally by this manager. 11
2005/01/10 10:38:57 SRE-SRV Shutdown the cluster. 2002
2005/01/10 10:44:21 SRE-SRV A use term is till 2024/01/01. 2600
2005/01/10 10:44:21 SRE-SRV NEC ExpressCluster Server Service has started properly. 1100
2005/01/10 10:44:21 SRE-SRV A network bind setting is inappropriate. 1312
2005/01/10 10:47:16 SRE-SRV Group SRE-GRP was added. 2016
2005/01/10 10:48:14 [Start group] has been done normally by this manager. 11
2005/01/10 10:48:19 SRE-SRV Group SRE-GRP was started on server SRE-SRV. 2007
2005/01/10 10:49:19 SRE-SRV Group SRE-GRP was stopped on server SRE-SRV. 2006
2005/01/10 10:49:46 SRE-SRV Group SRE-GRP was changed. 2018
2005/01/10 10:50:08 [Start group] has been done normally by this manager. 11
2005/01/10 10:50:12 SRE-SRV Group SRE-GRP was started on server SRE-SRV. 2007
Display or update properties of the cluster, server, or resource that you selected (Only display is avairable on resources)
Start
NEC ExpressCluster
11:33 AM

Step 2:
Click *Yes* below:

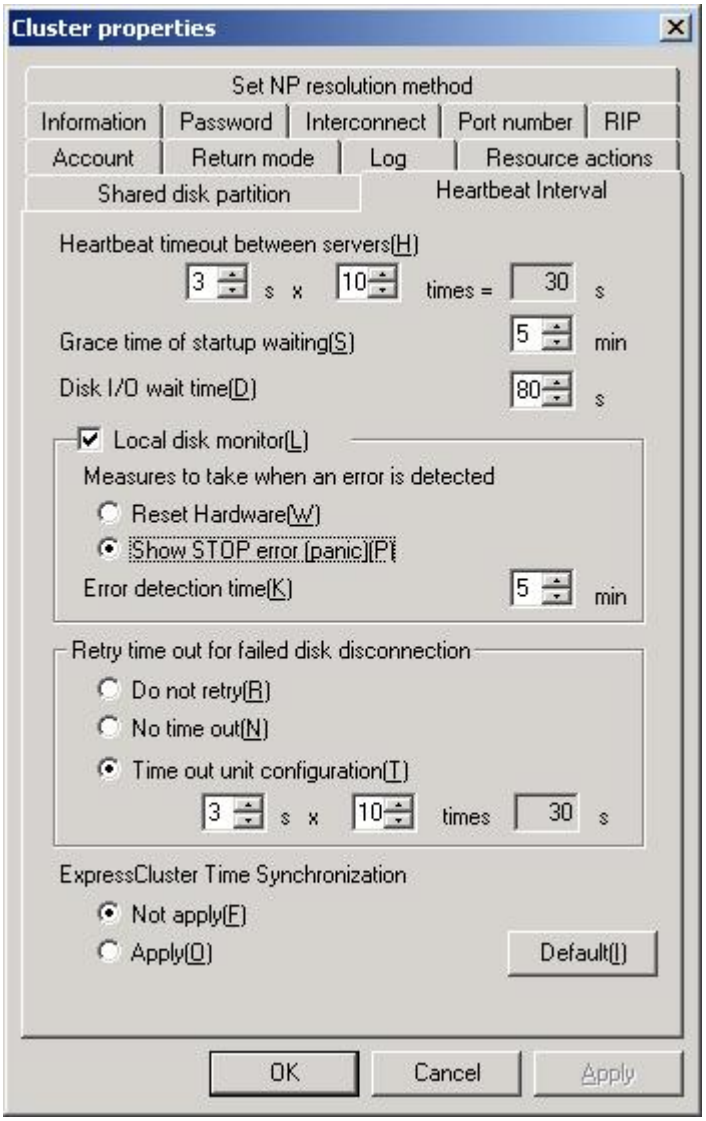
Step 3:
Select *Detailed set up(D)* and click OK



Step 4:
Select the *Return mode* tab, and select *Auto return(N)* as below:



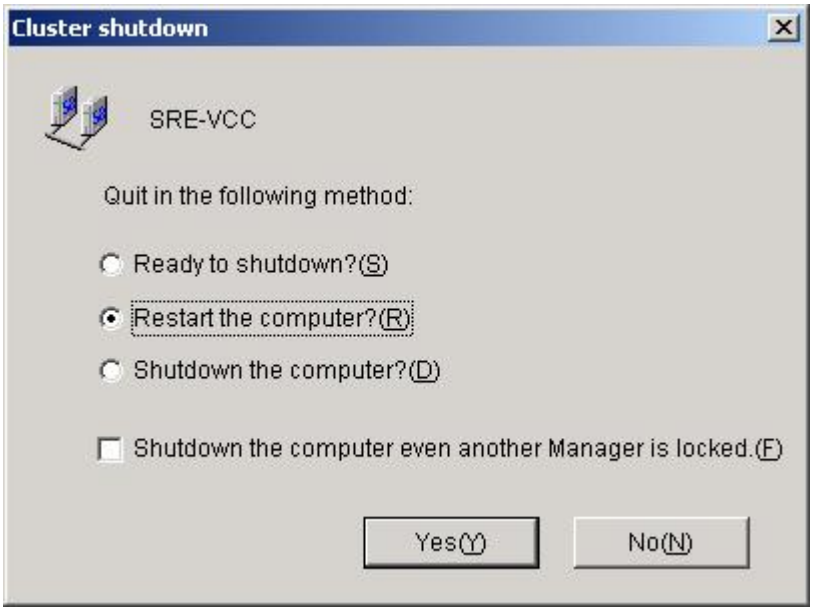
Step 5:
Select the *Heartbeat Interval* tab and select the *Show STOP error (panic)(P)* radio button and click *OK* as in the following screen:



Step 6:
Click *Yes* below:

Step 7:

Select *Restart the Computer?(R)* and click *Yes*:



Step 8:
Click *Yes:*

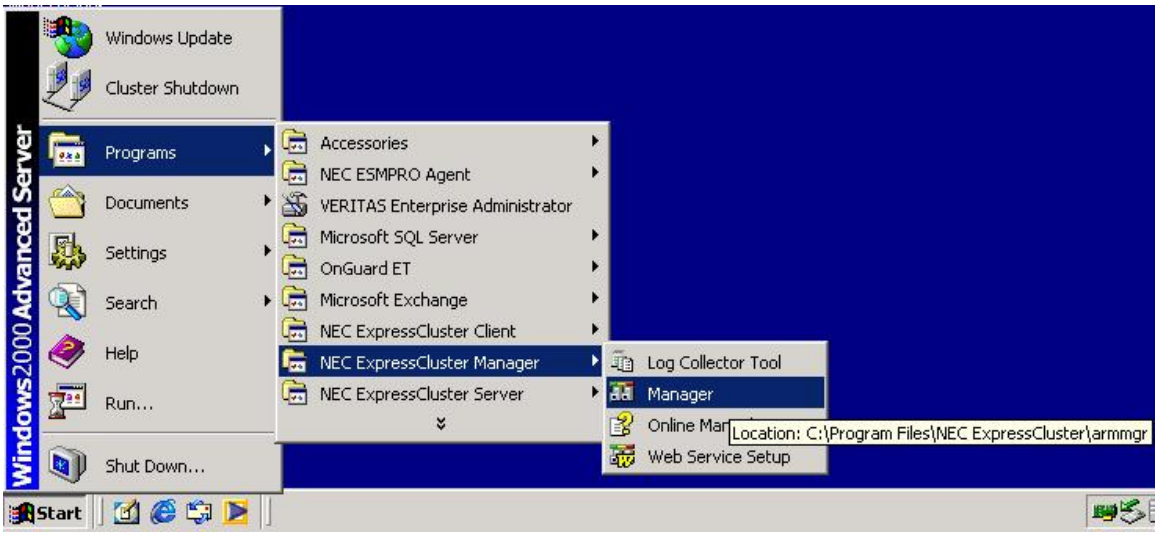
Step 9:
After the server reboots, start the command prompt (using *Start-> Programs->Accessories-> Command Prompt*) and type in the following command and hit enter:
armem /M reboot

You see the following text:
Command succeeded.

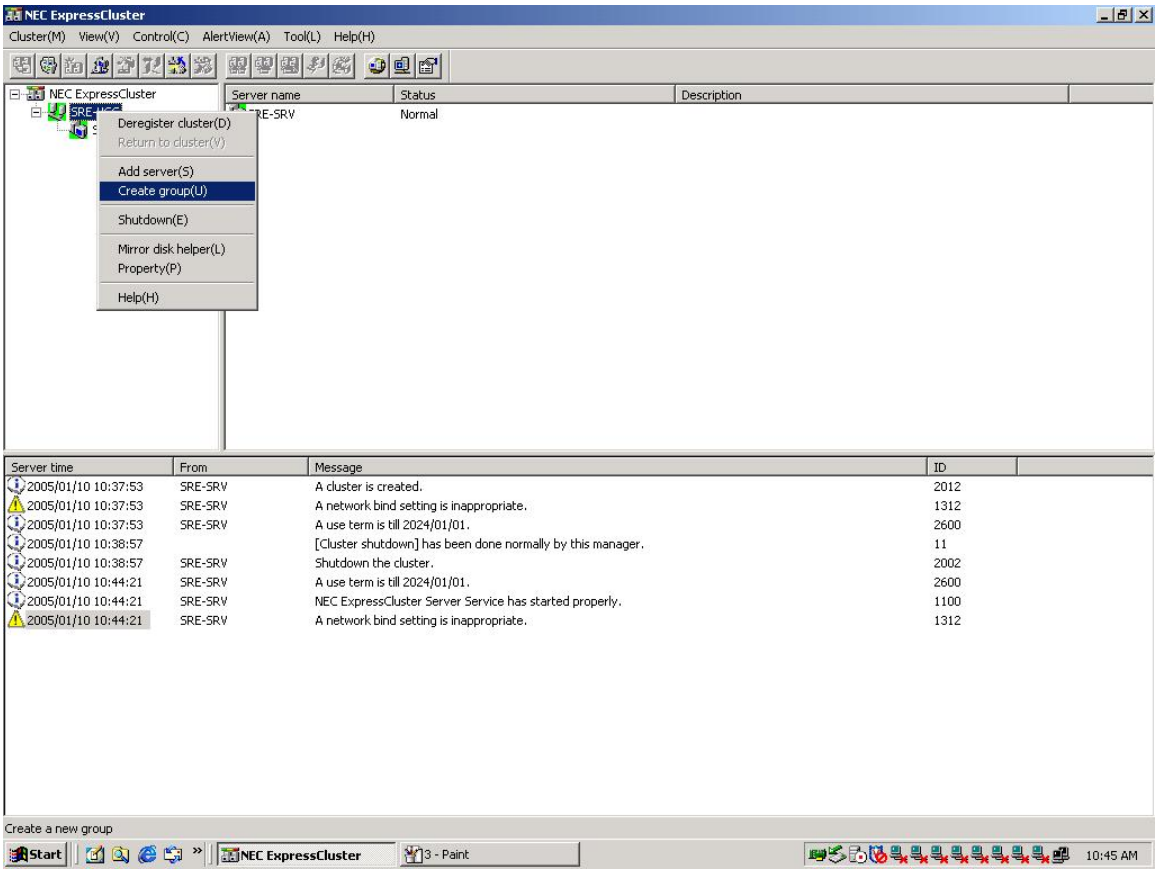
Note:
This command configures the server for automatic reboot incase a process terminates more than x times in y hours. These threshold values are specified using the armload command. Please see section ARMLOAD in Chapter 8 for the explanation of these threshold parameters.

Creating the Failover Group

Step 1:
Start the NEC ExpressCluster Manager using ***Start->Programs->NEC ExpressCluster Manager***

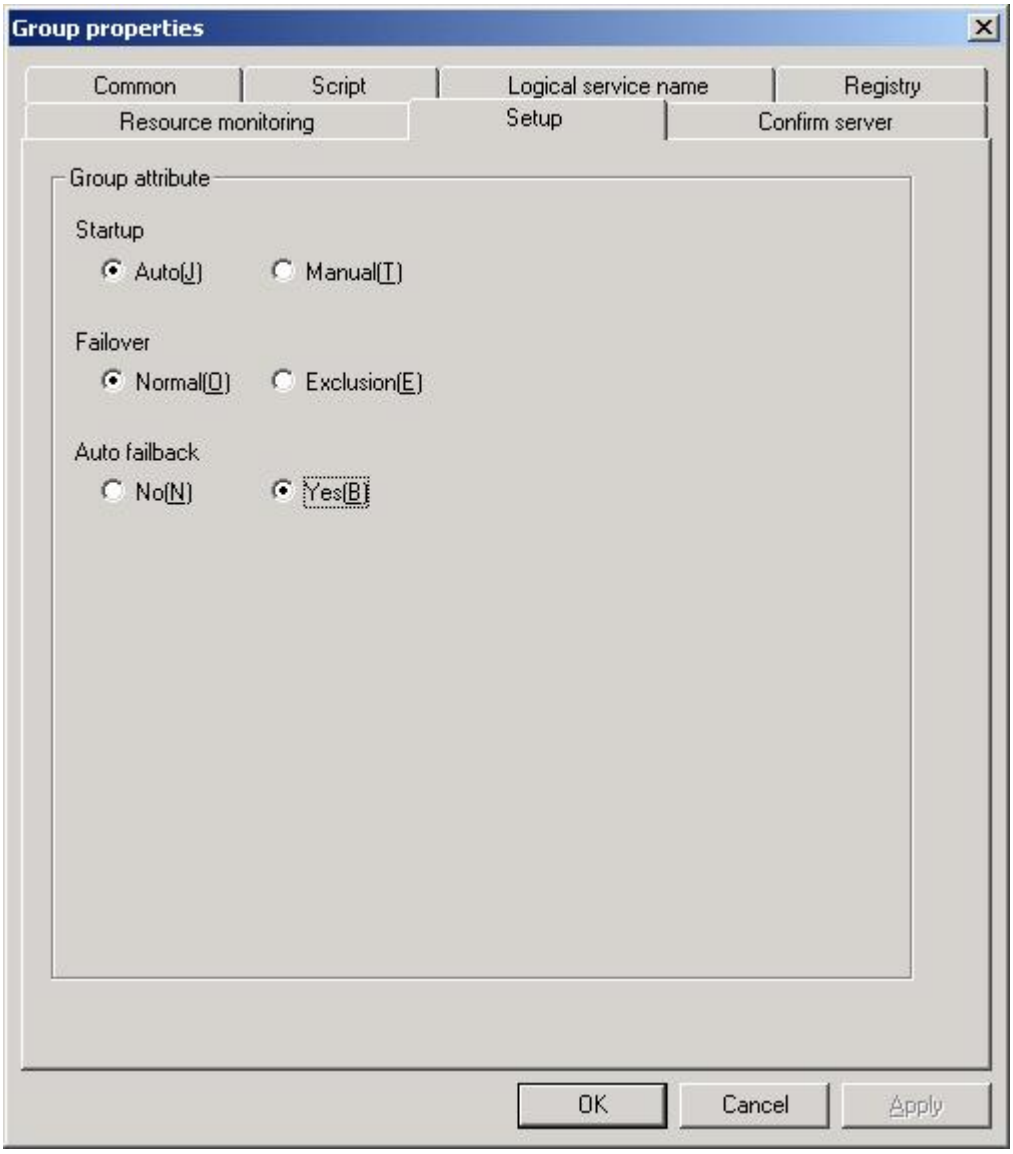


Step 2
Right click on the cluster icon and select *Create Group(U)* as below:

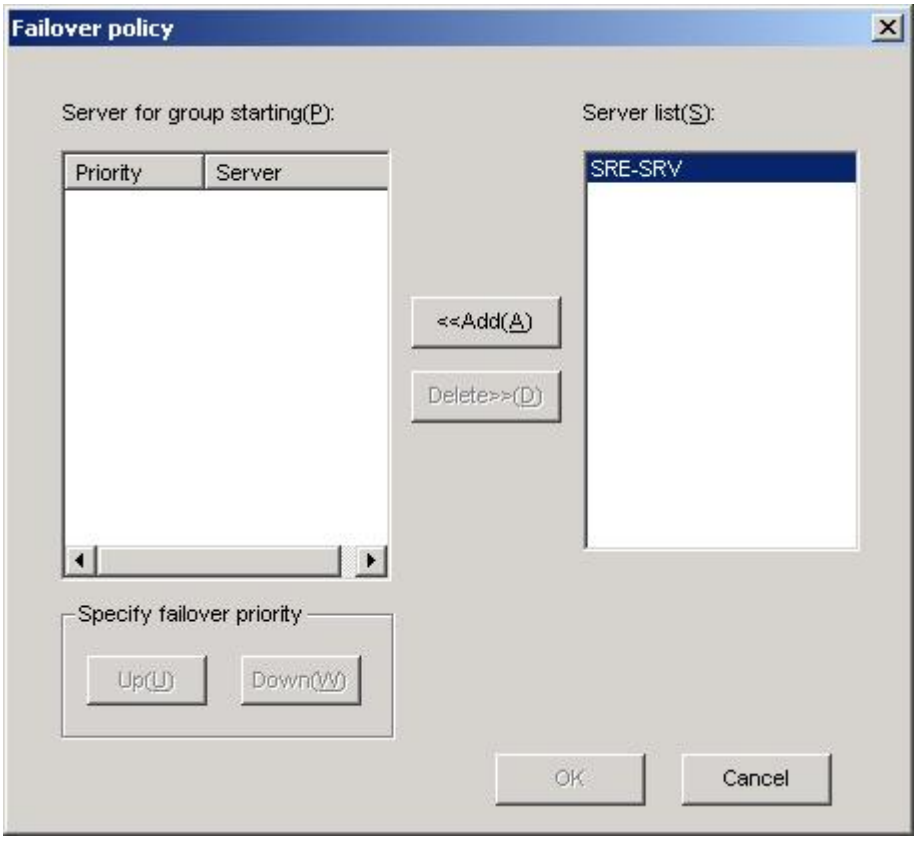


Step 3:
Enter the failover group name as say SRE-GRP and click *OK*:

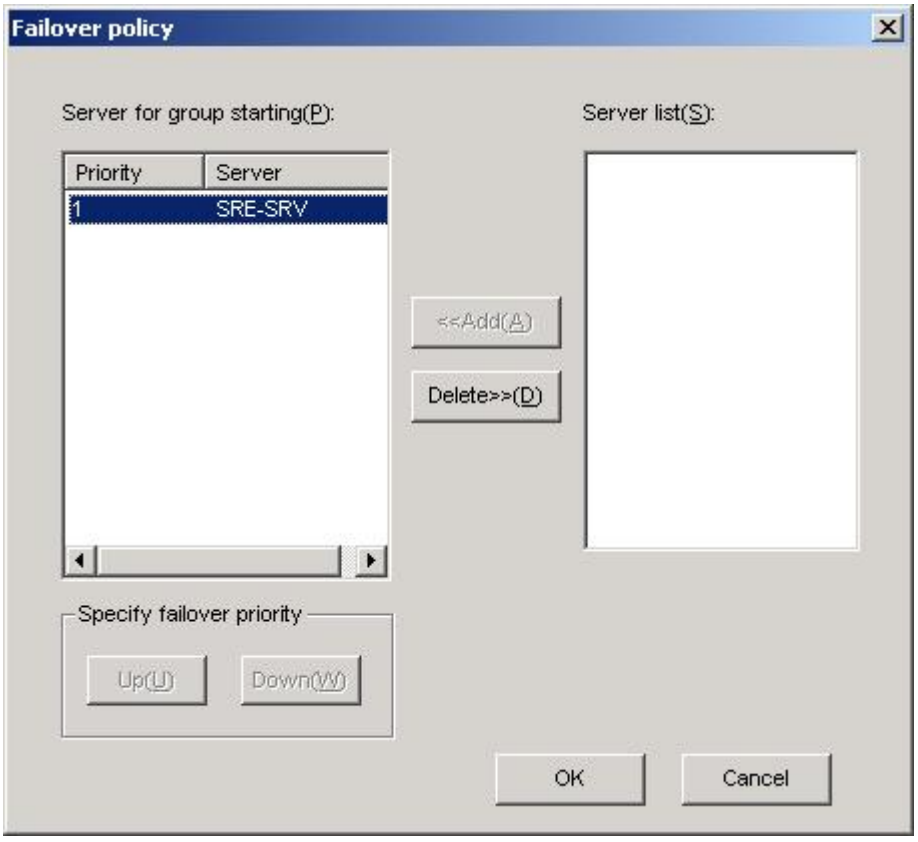
Step 4:
Select the *Setup* tab, select the *Yes(B)* radio button for *Auto failback* and click *OK*



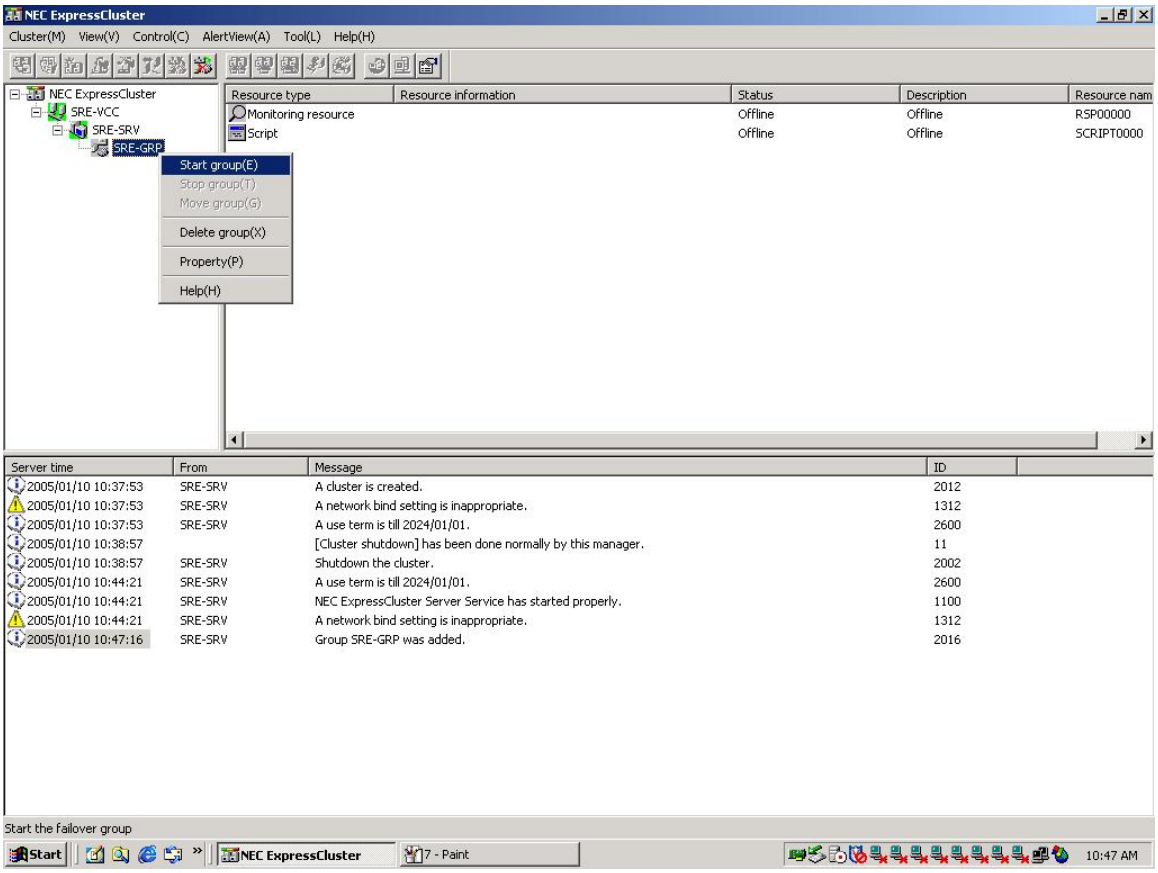
Step 5:
Select the server from the *Server list(S)* and click the <<*Add(A)* button:



Step 6:
Click OK on the following screen:

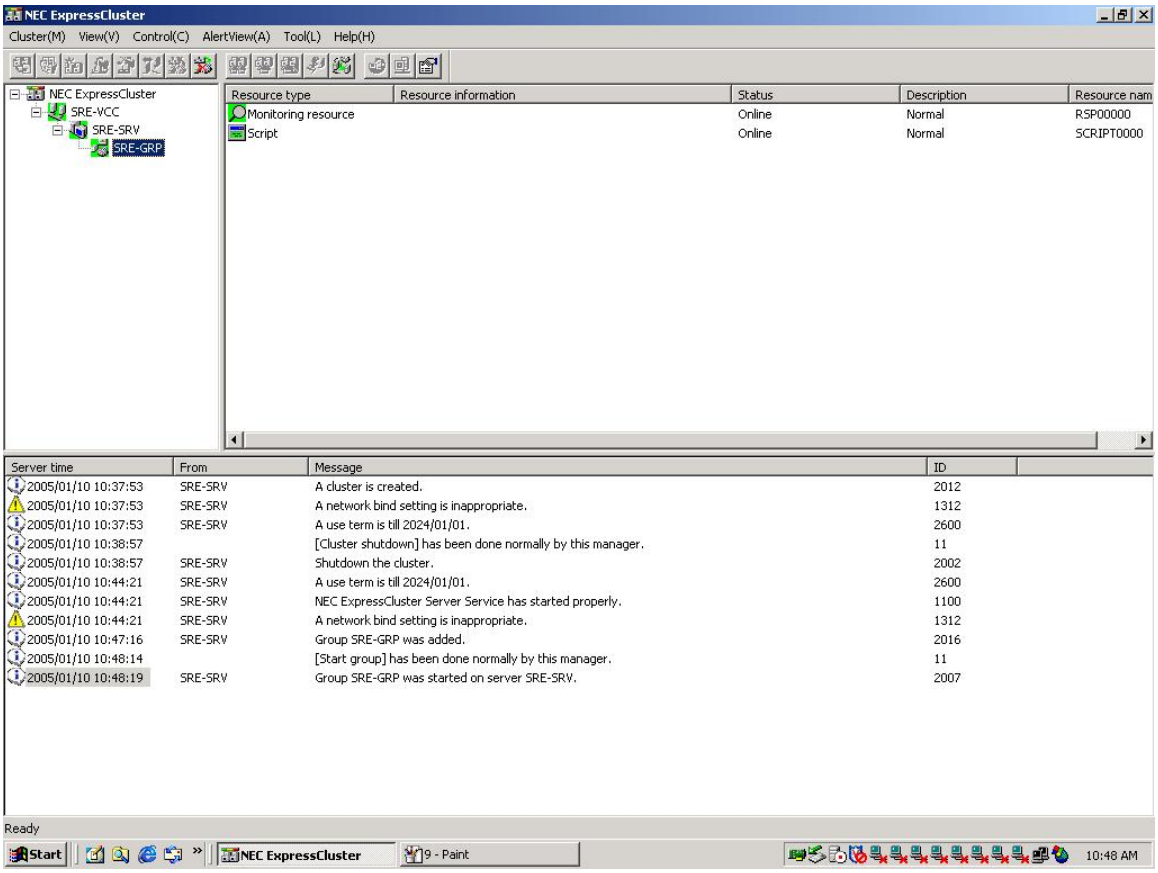


Step 7:
Right click on the failover group and start the group on the server by following the screen shots below:



Click *OK***:**

The Failover Group icon should be Green and all the resources should be Online as below:


NEC ExpressCluster
Cluster(M) View(V) Control(C) AlertView(A) Tool(L) Help(H)
NEC ExpressCluster
SRE-VCC
SRE-SRV
SRE-GRP
Resource type
Resource information
Status
Description
Resource nam
Monitoring resource
Online
Normal
RSP00000
Script
Online
Normal
SCRIPT0000
Server time
From
Message
ID
2005/01/10 10:37:53 SRE-SRV A cluster is created. 2012
2005/01/10 10:37:53 SRE-SRV A network bind setting is inappropriate. 1312
2005/01/10 10:37:53 SRE-SRV A use term is till 2024/01/01. 2600
2005/01/10 10:38:57 [Cluster shutdown] has been done normally by this manager. 11
2005/01/10 10:38:57 SRE-SRV Shutdown the cluster. 2002
2005/01/10 10:44:21 SRE-SRV A use term is till 2024/01/01. 2600
2005/01/10 10:44:21 SRE-SRV NEC ExpressCluster Server Service has started properly. 1100
2005/01/10 10:44:21 SRE-SRV A network bind setting is inappropriate. 1312
2005/01/10 10:47:16 SRE-SRV Group SRE-GRP was added. 2016
2005/01/10 10:48:14 [Start group] has been done normally by this manager. 11
2005/01/10 10:48:19 SRE-SRV Group SRE-GRP was started on server SRE-SRV. 2007
Ready
Start
NEC ExpressCluster
9 - Paint
10:48 AM

Chapter 6: Microsoft SQL Server 2000 Customization

Prerequisites

Please verify that the following services start and stop normally using *Start -> Settings -> Control Panel -> Administrative tools -> Services:*

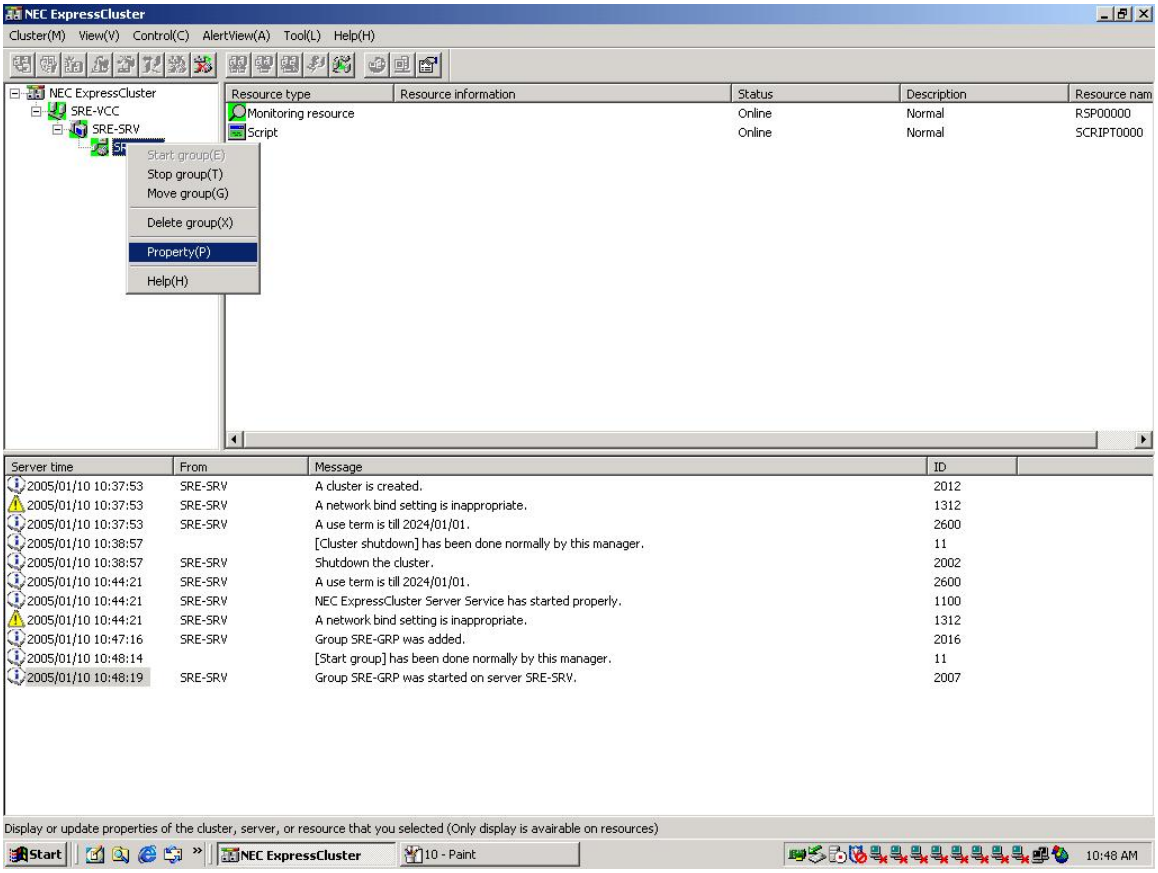
1. MSSQLSERVER
2. SQLSERVERAGENT

If these services are running, please stop these services using *Control Panel -> Services*

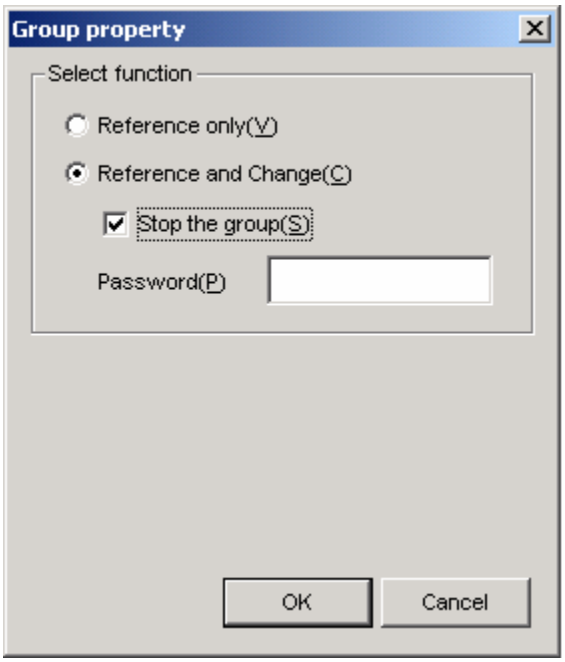
Customization Steps

Step 1:
Right Click on the Fail over Group in the ExpressCluster Manager UI and select the *Property(P)* menu item.

The Screen shot is as shown:

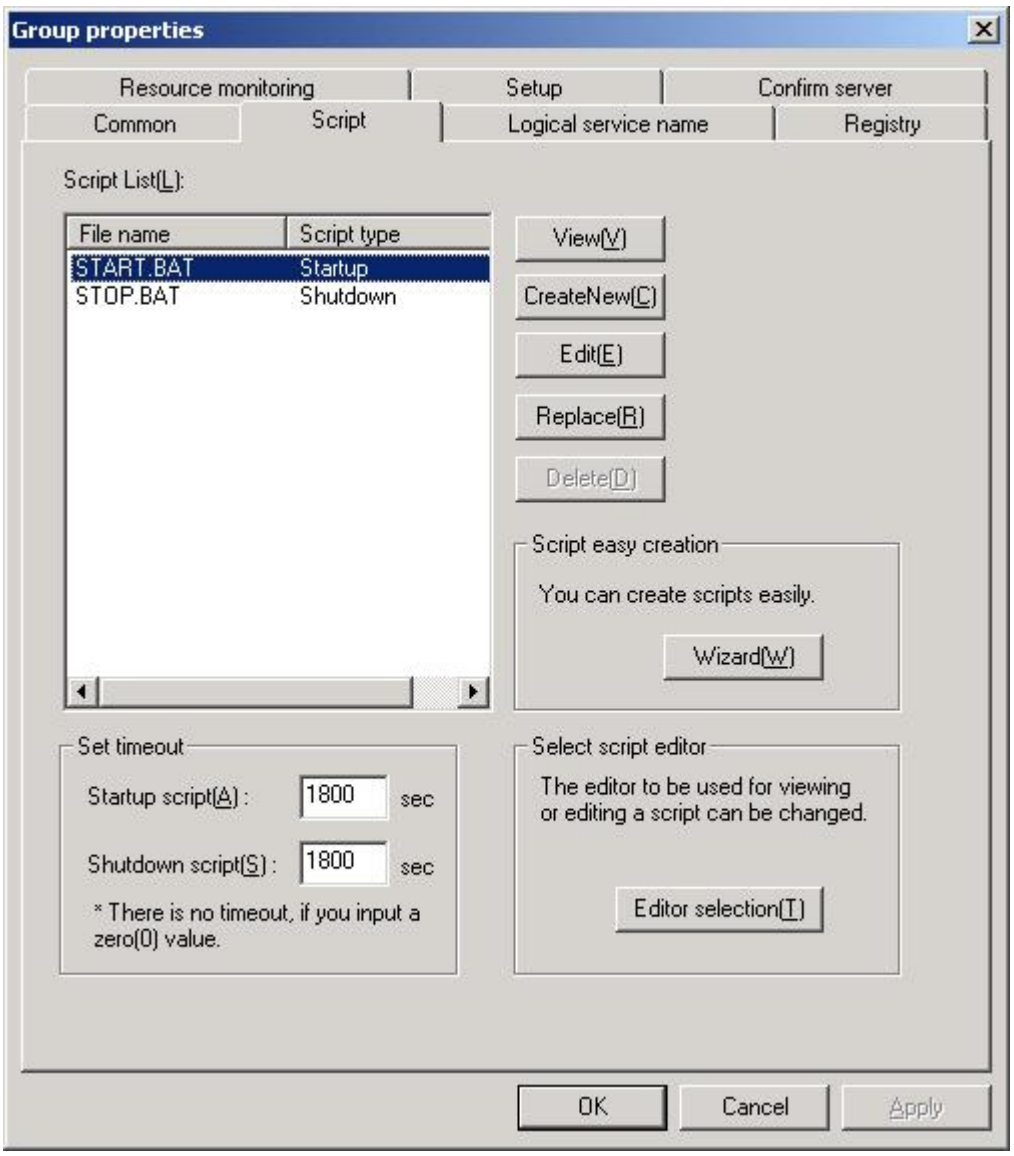

NEC ExpressCluster
Cluster(M) View(V) Control(C) AlertView(A) Tool(L) Help(H)
NEC ExpressCluster
SRE-VCC
SRE-SRV
Start group(E)
Stop group(T)
Move group(G)
Delete group(X)
Property(P)
Help(H)
Resource type
Resource information
Status
Description
Resource nam
Monitoring resource
Online
Normal
RSP00000
Script
Online
Normal
SCRIPT0000
Server time
From
Message
ID
2005/01/10 10:37:53 SRE-SRV A cluster is created. 2012
2005/01/10 10:37:53 SRE-SRV A network bind setting is inappropriate. 1312
2005/01/10 10:37:53 SRE-SRV A use term is till 2024/01/01. 2600
2005/01/10 10:38:57 [Cluster shutdown] has been done normally by this manager. 11
2005/01/10 10:38:57 SRE-SRV Shutdown the cluster. 2002
2005/01/10 10:44:21 SRE-SRV A use term is till 2024/01/01. 2600
2005/01/10 10:44:21 SRE-SRV NEC ExpressCluster Server Service has started properly. 1100
2005/01/10 10:44:21 SRE-SRV A network bind setting is inappropriate. 1312
2005/01/10 10:47:16 SRE-SRV Group SRE-GRP was added. 2016
2005/01/10 10:48:14 [Start group] has been done normally by this manager. 11
2005/01/10 10:48:19 SRE-SRV Group SRE-GRP was started on server SRE-SRV. 2007
Display or update properties of the cluster, server, or resource that you selected (Only display is avairable on resources)
Start
NEC ExpressCluster
10 - Paint
10:48 AM

Step 2:
Select the *Reference and Change (C)* radio button. Also check the *Stop the group(S)* check box and Click *OK*. The screenshot is as below:

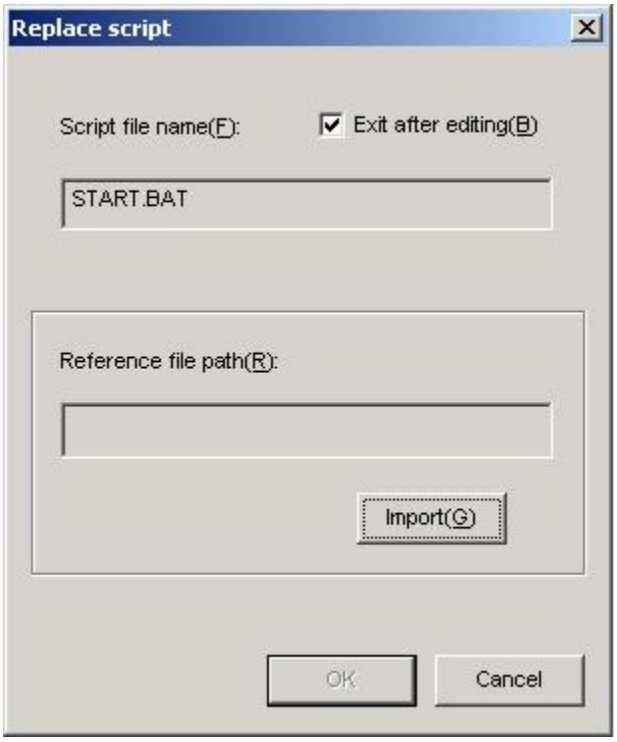


Step 3:
Select the *Scripts* tab and highlight the *start.bat* script.

The screen shot is as shown:

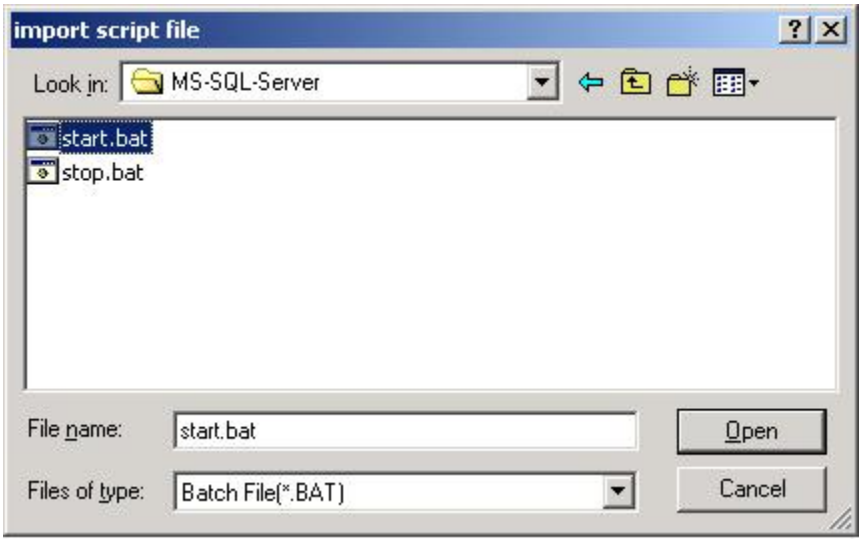


Step 4:
Click on the *Replace* button. This takes you to the following screen:

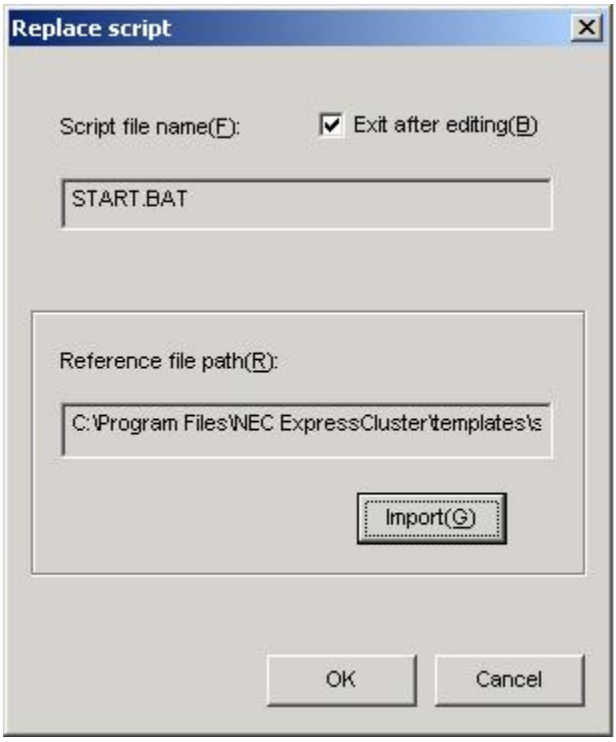


Click on the *Import(G)* button on the screen above.

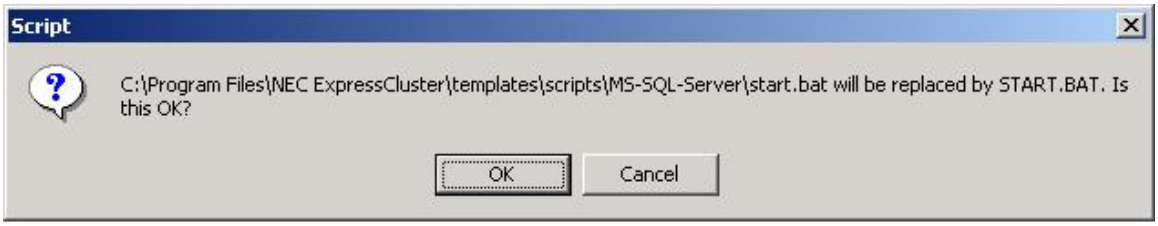
Step 5:
Navigate to *C:\Program Files\NEC ExpressCluster\templates\scripts\MS-SQL-Server*, select the *start.bat* file and click *Open* as shown:



Step 6:
Click *OK* on the following screen:

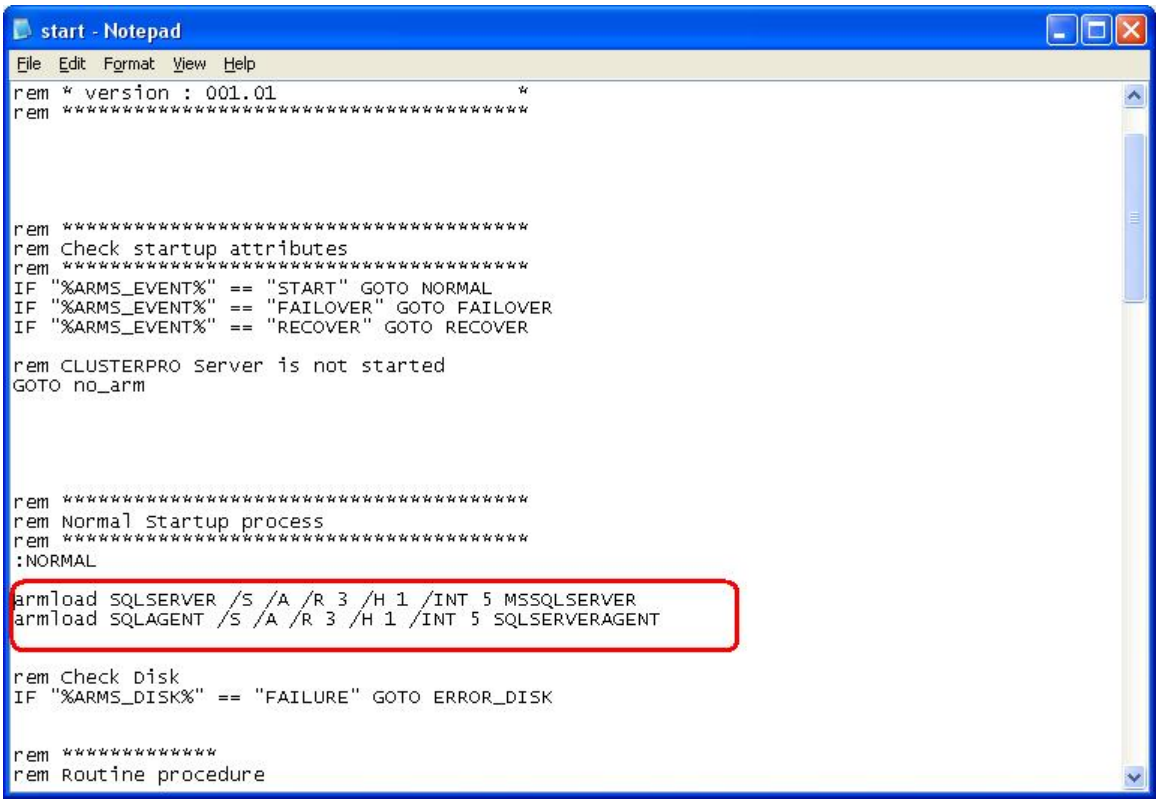


Step 7:
Click *OK* on the following confirmation dialog:



Step 8:
This opens the *start.bat* file in notepad. You should see the following two lines under the **"***:Normal***"** section:

armload SQLSERVER /S /A /R 3 /H 1 /INT 5 MSSQLSERVER
armload SQLAGENT /S /A /R 3 /H 1 /INT 5 SQLSERVERAGENT

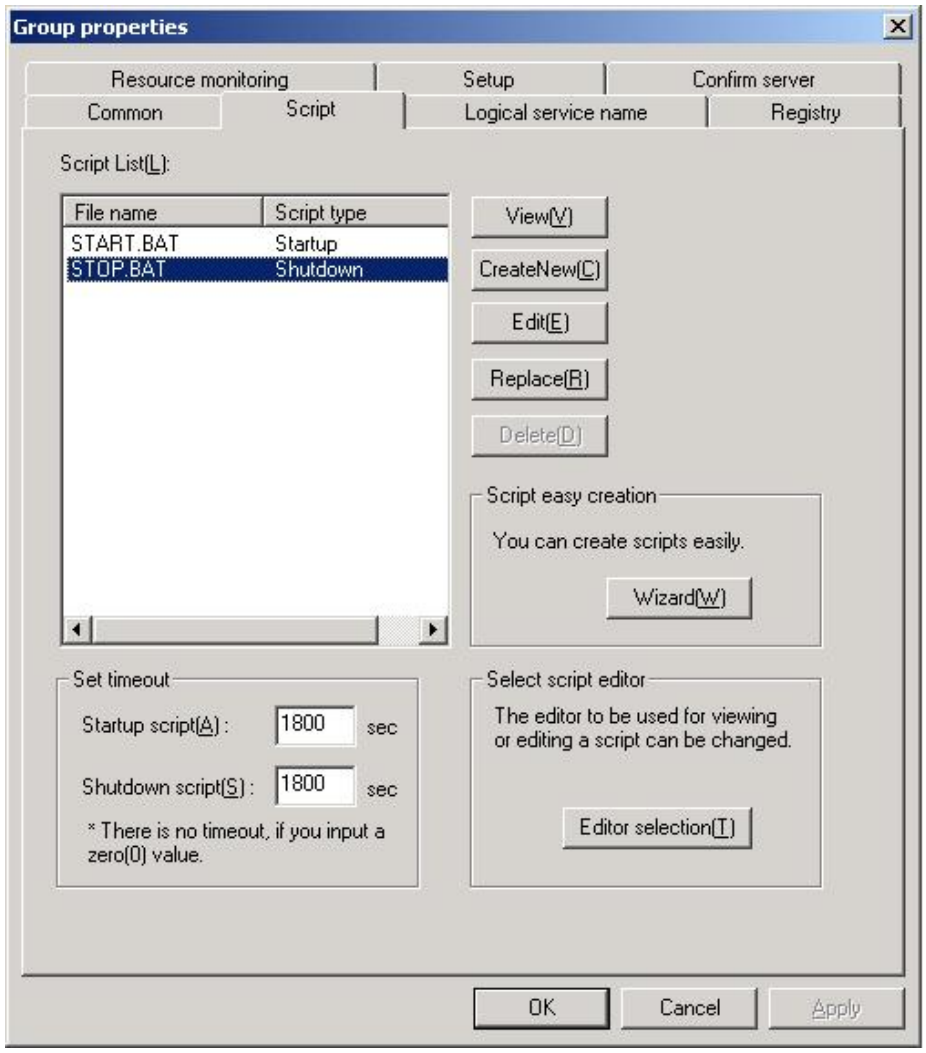

start - Notepad
File Edit Format View Help
rem * version : 001.01 *
rem **
rem **
rem Check startup attributes
rem **
IF "%ARMS_EVENT%" == "START" GOTO NORMAL
IF "%ARMS_EVENT%" == "FAILOVER" GOTO FAILOVER
IF "%ARMS_EVENT%" == "RECOVER" GOTO RECOVER
rem CLUSTERPRO Server is not started
GOTO no_arm
rem **
rem Normal Startup process
rem **
:NORMAL
armload SQLSERVER /S /A /R 3 /H 1 /INT 5 MSSQLSERVER
armload SQLAGENT /S /A /R 3 /H 1 /INT 5 SQLSERVERAGENT
rem Check Disk
IF "%ARMS_DISK%" == "FAILURE" GOTO ERROR_DISK
rem **************
rem Routine procedure

Please read the following Notes for the explanation of these commands and parameters.

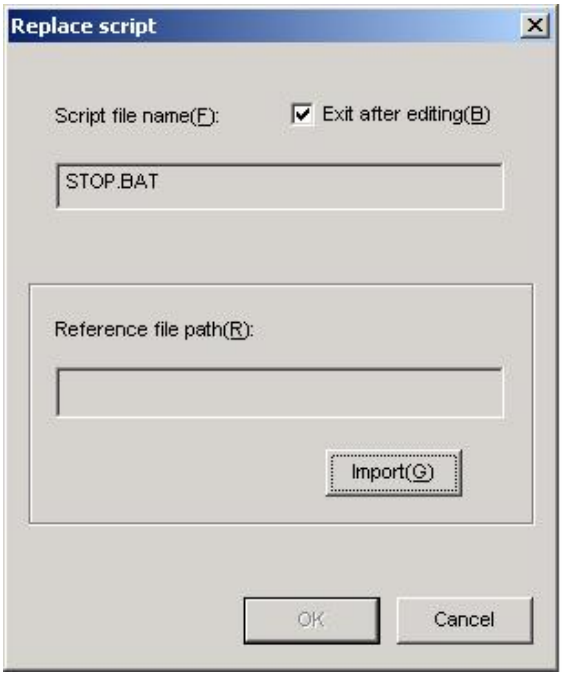
Notes:
"SQLSERVER" is an ID used for monitoring MSSQLSERVER service. This ID is used for terminating the service using the armkill command. This ID must be a unique name within a cluster. It is case insensitive and can be at most 255 single byte alphanumeric characters.
/S specifies that MSSQLSERVER is a service
/A indicates that ExpressCluster will not identify it as an error if the service has already started and is running
/R n /H x /INT y indicates that ExpressCluster will restart the service after "y" seconds, if the service has terminated less than or equal to"n" times in "x" hours. In the case where MSSQLSERVER service terminates more than "n" times within "x" hours, the server is rebooted automatically.

Step 9:
Close the file.

Step 10:
Highlight the *stop.bat* script similar to *Step 3* above.

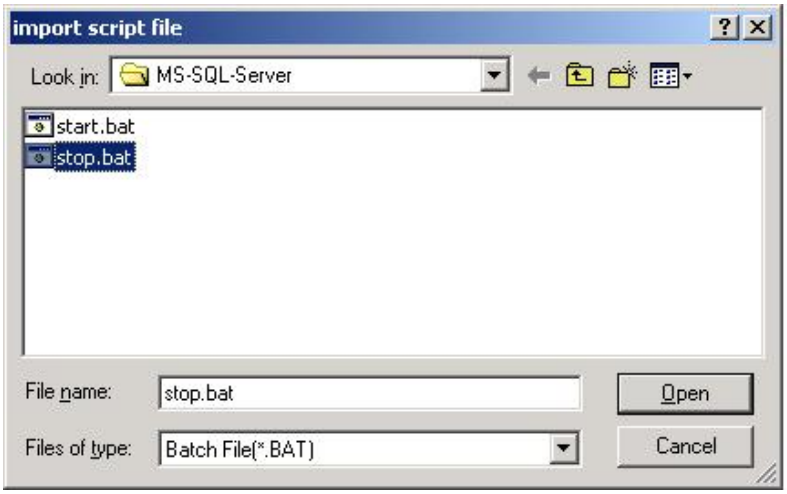


Step 11:
Click on the *Replace* button. This takes you to the following screen:

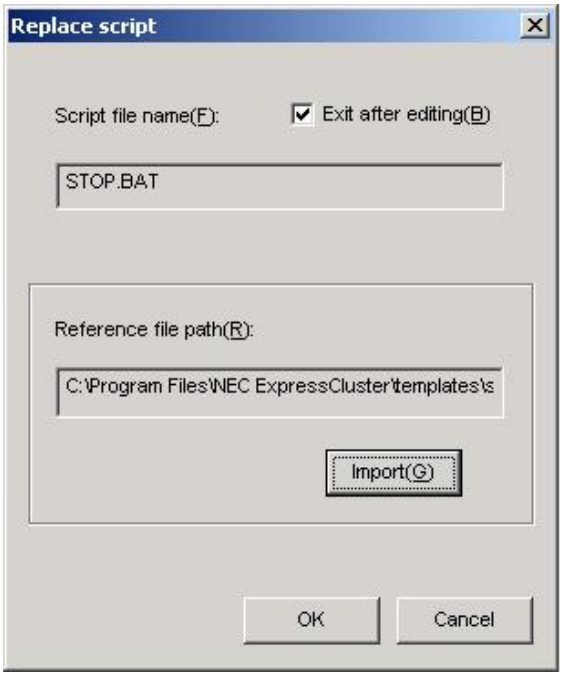


Click on the *Import(G)* button on the screen above.

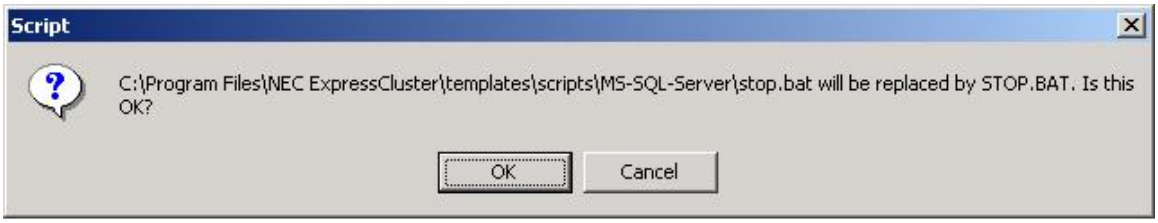
Step 12:
Navigate to *C:\Program Files\NEC ExpressCluster\templates\scripts\MS-SQL-Server*, select the *stop.bat* file and click *Open* as shown:



Step 13:
Click *OK* on the following screen:

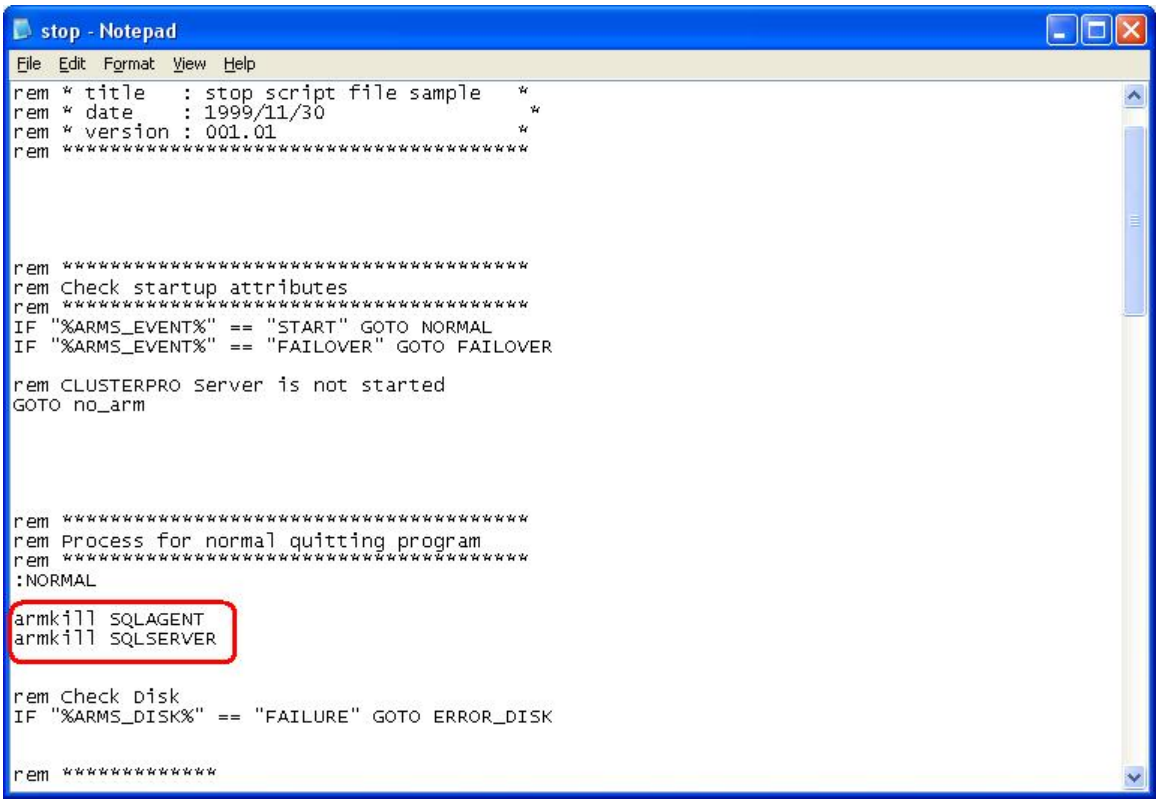


Step 14:
Click *OK* on the following confirmation dialog:

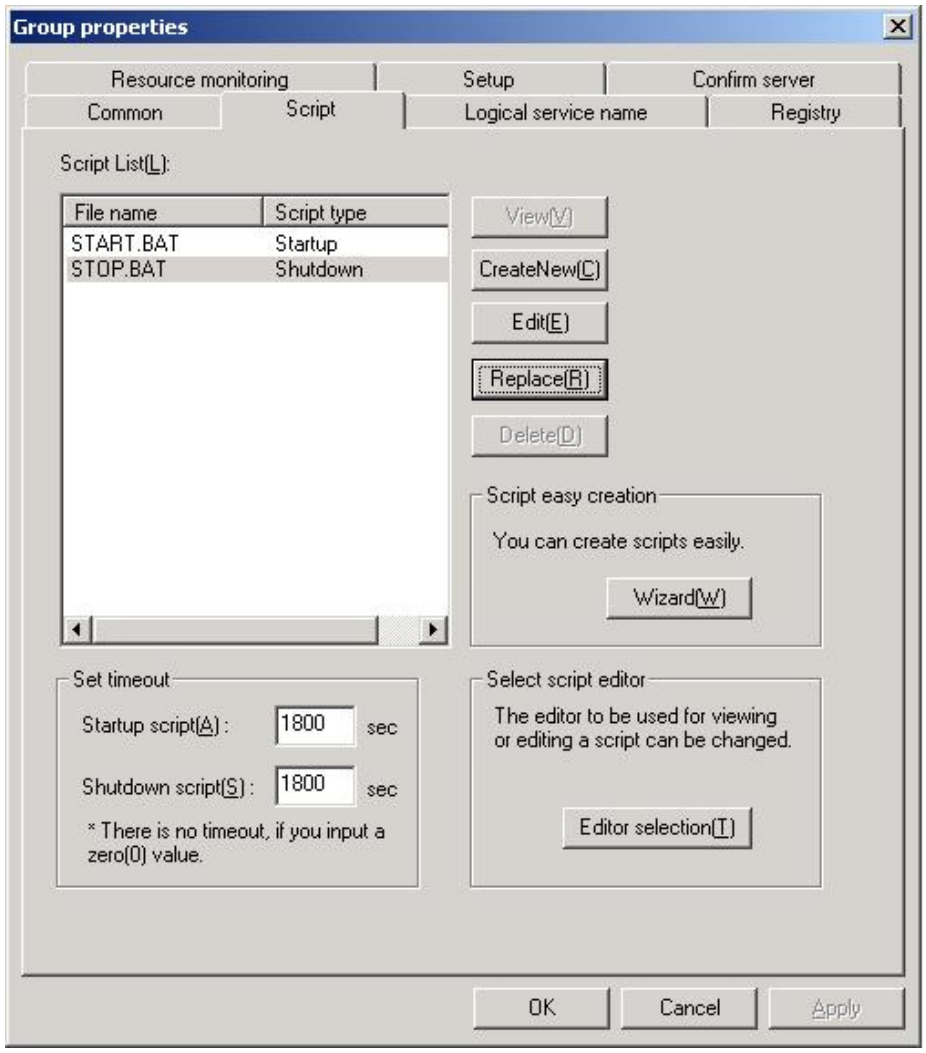


Step 15:
This opens the *stop.bat* file in notepad. You should see the following two lines under the "*:Normal"* section as shown below:

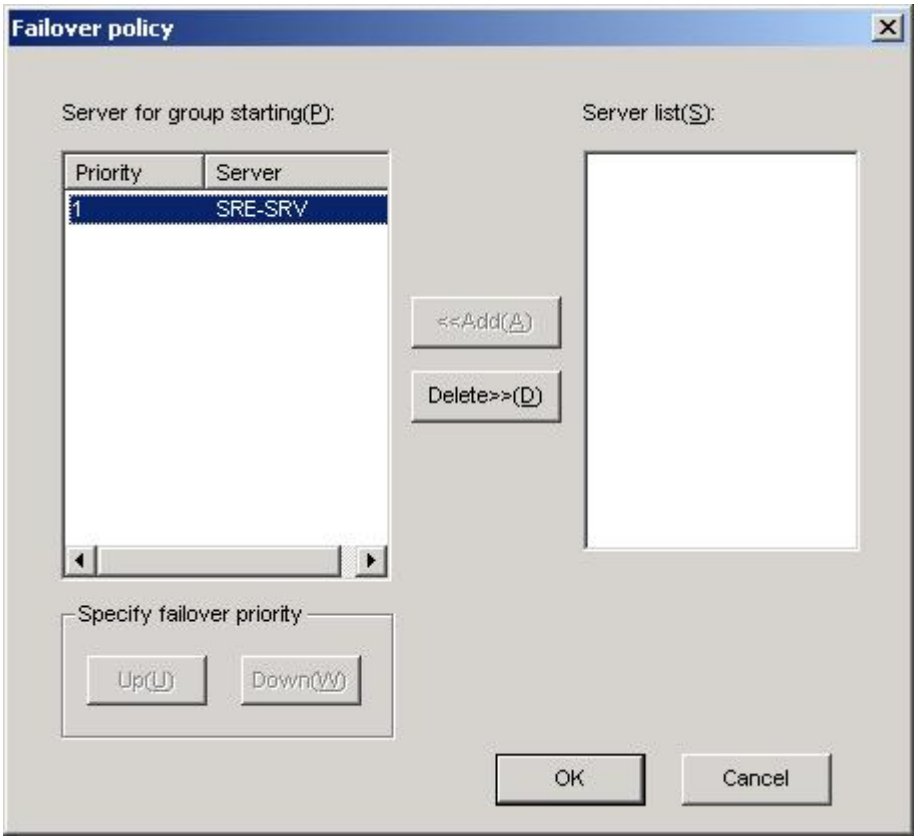
armkill SQLAGENT
armkill SQLSERVER



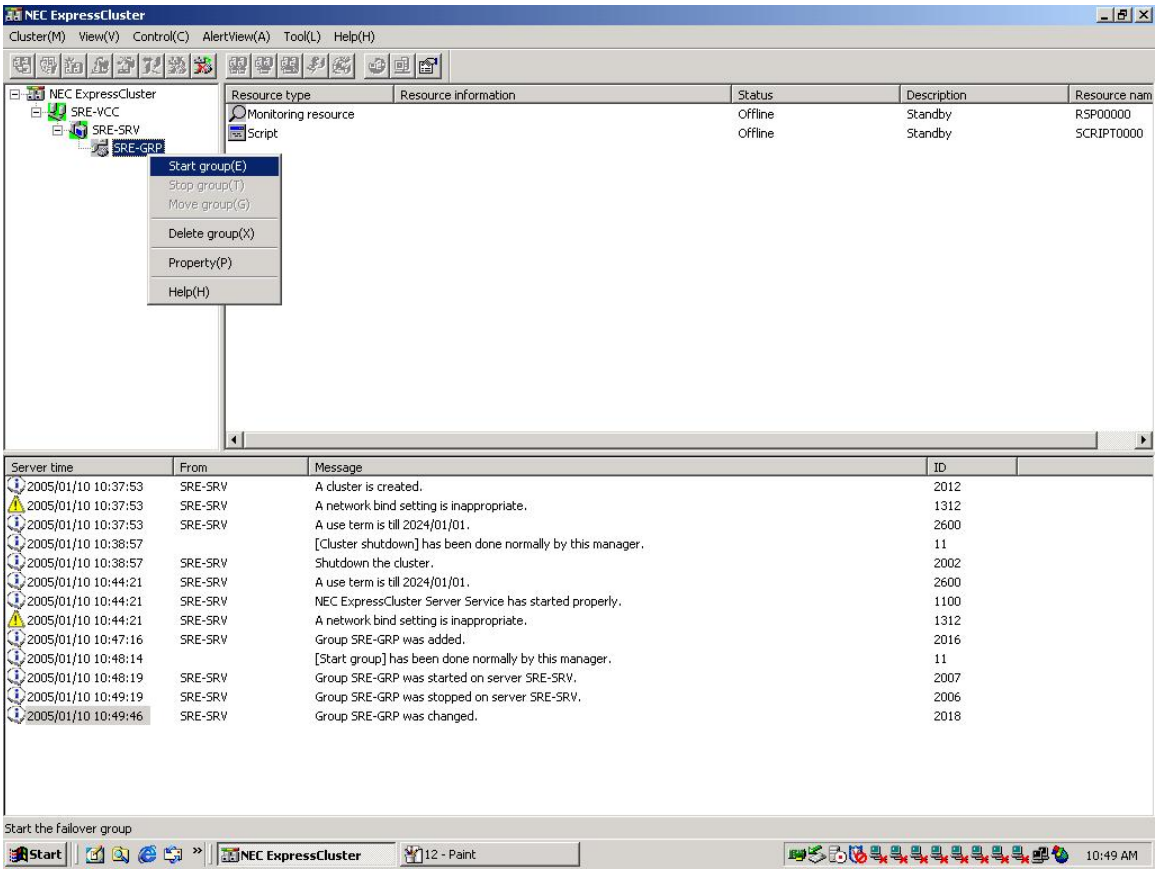
Step 16:
Close the file and click *OK* on the following screen:



Step 17:
Click *OK* again on the following screen:

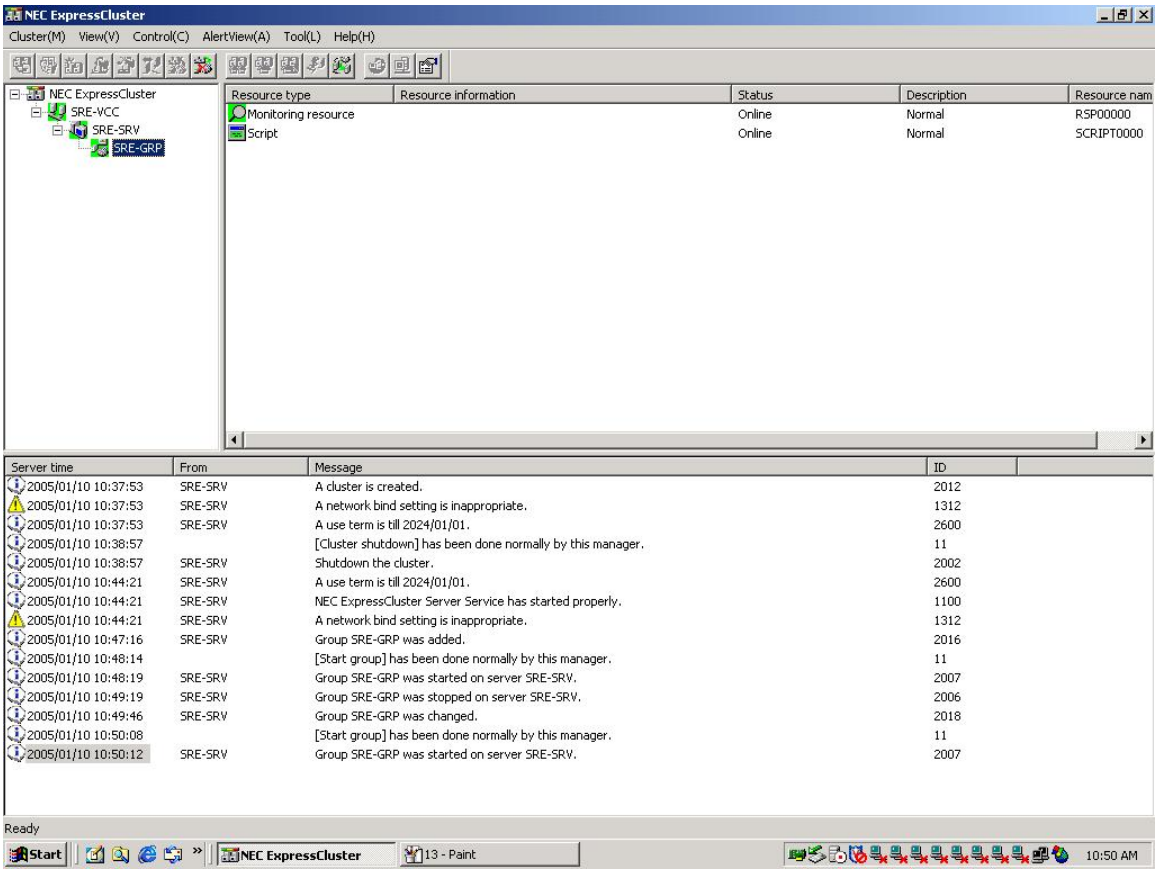


Step 18:
Start the group on the server. Right click on the Failover Group and select “Start Group (E)” to start the group on the server. Follow the screenshots below:



Click *OK* on the screen below:

The Failover Group icon should be Green and all the resources should be Online as below:


NEC ExpressCluster
Cluster(M) View(V) Control(C) AlertView(A) Tool(L) Help(H)
NEC ExpressCluster
SRE-VCC
SRE-SRV
SRE-GRP
Resource type
Resource information
Status
Description
Resource nam
Monitoring resource
Online
Normal
RSP00000
Script
Online
Normal
SCRIPT0000
Server time
From
Message
ID
2005/01/10 10:37:53 SRE-SRV A cluster is created. 2012
2005/01/10 10:37:53 SRE-SRV A network bind setting is inappropriate. 1312
2005/01/10 10:37:53 SRE-SRV A use term is till 2024/01/01. 2600
2005/01/10 10:38:57 [Cluster shutdown] has been done normally by this manager. 11
2005/01/10 10:38:57 SRE-SRV Shutdown the cluster. 2002
2005/01/10 10:44:21 SRE-SRV A use term is till 2024/01/01. 2600
2005/01/10 10:44:21 SRE-SRV NEC ExpressCluster Server Service has started properly. 1100
2005/01/10 10:44:21 SRE-SRV A network bind setting is inappropriate. 1312
2005/01/10 10:47:16 SRE-SRV Group SRE-GRP was added. 2016
2005/01/10 10:48:14 [Start group] has been done normally by this manager. 11
2005/01/10 10:48:19 SRE-SRV Group SRE-GRP was started on server SRE-SRV. 2007
2005/01/10 10:49:19 SRE-SRV Group SRE-GRP was stopped on server SRE-SRV. 2006
2005/01/10 10:49:46 SRE-SRV Group SRE-GRP was changed. 2018
2005/01/10 10:50:08 [Start group] has been done normally by this manager. 11
2005/01/10 10:50:12 SRE-SRV Group SRE-GRP was started on server SRE-SRV. 2007
Ready
Start
NEC ExpressCluster
13 - Paint
10:50 AM

Please verify that the following services configured in the cluster start successfully on the server:

1. MSSQLSERVER
2. SQLSERVERAGENT

In case either or both of the above processes terminate, they are automatically restarted after 5 seconds. In case they terminate more than 3 times in 1 hour, the server is rebooted automatically.

This completes the configuration for monitoring the Microsoft SQL Server 2000 processes.

Chapter 7: Microsoft Exchange Server 2000 Customization

Prerequisites

Please verify that the following services start and stop normally using *Start -> Settings -> Control Panel -> Administrative tools -> Services:*

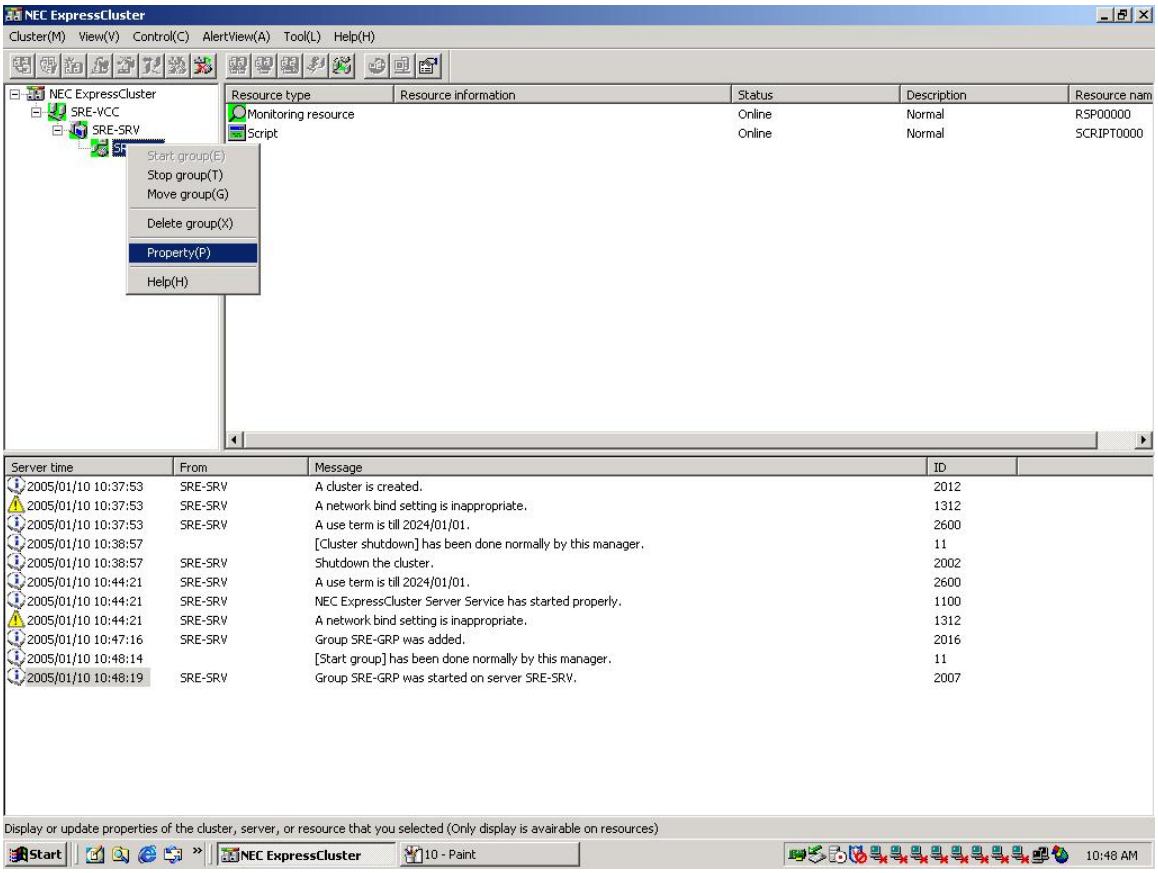
1. IMAP4Svc
2. MSExchangeIS
3. MSExchangeMGMT
4. MSExchangeMTA
5. POP3svc
6. RESvc
7. MSExchangeSA

If these services are running, please stop these services using *Start->Settings-> Control Panel->Services*

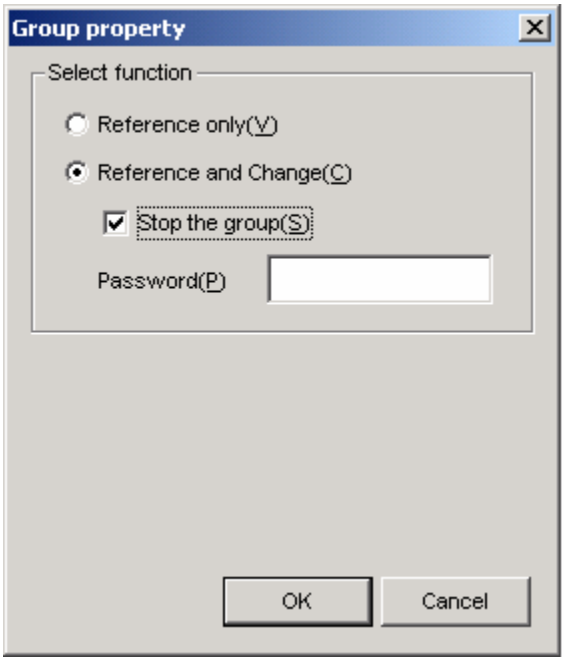
Customization Steps

Step 1:
Right Click on the Fail over Group in the ExpressCluster Manager UI and select the *Property(P)* menu item.

The Screen shot is as shown:

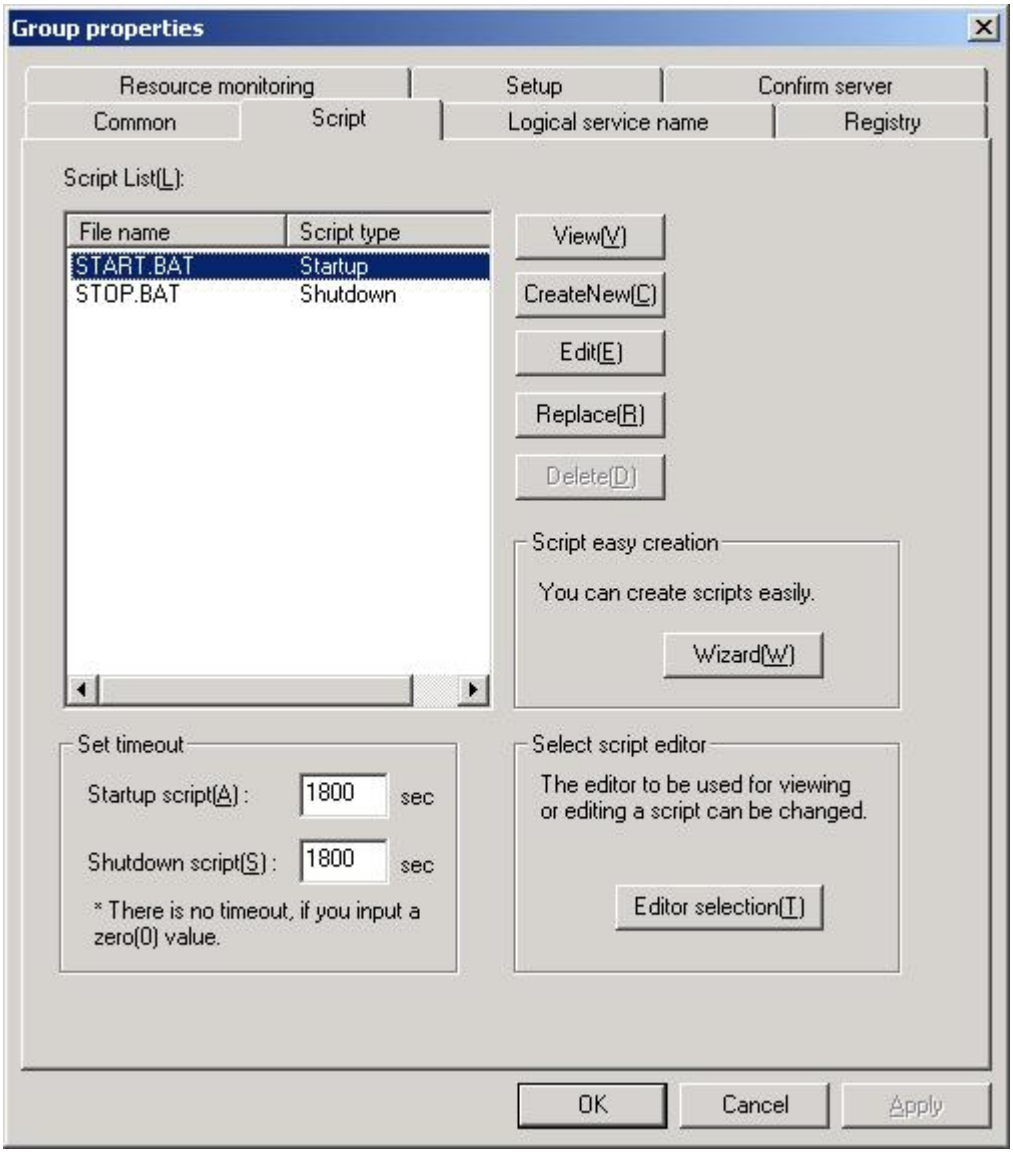

NEC ExpressCluster
Cluster(M) View(V) Control(C) AlertView(A) Tool(L) Help(H)
NEC ExpressCluster
SRE-VCC
SRE-SRV
Start group(E)
Stop group(T)
Move group(G)
Delete group(X)
Property(P)
Help(H)
Resource type
Resource information
Status
Description
Resource nam
Monitoring resource
Online
Normal
RSP00000
Script
Online
Normal
SCRIPT0000
Server time
From
Message
ID
2005/01/10 10:37:53 SRE-SRV A cluster is created. 2012
2005/01/10 10:37:53 SRE-SRV A network bind setting is inappropriate. 1312
2005/01/10 10:37:53 SRE-SRV A use term is till 2024/01/01. 2600
2005/01/10 10:38:57 [Cluster shutdown] has been done normally by this manager. 11
2005/01/10 10:38:57 SRE-SRV Shutdown the cluster. 2002
2005/01/10 10:44:21 SRE-SRV A use term is till 2024/01/01. 2600
2005/01/10 10:44:21 SRE-SRV NEC ExpressCluster Server Service has started properly. 1100
2005/01/10 10:44:21 SRE-SRV A network bind setting is inappropriate. 1312
2005/01/10 10:47:16 SRE-SRV Group SRE-GRP was added. 2016
2005/01/10 10:48:14 [Start group] has been done normally by this manager. 11
2005/01/10 10:48:19 SRE-SRV Group SRE-GRP was started on server SRE-SRV. 2007
Display or update properties of the cluster, server, or resource that you selected (Only display is avairable on resources)
Start
NEC ExpressCluster
10 - Paint
10:48 AM

Step 2:
Select the *Reference and Change (C)* radio button. Also check the *Stop the group(S)* check box and Click *OK*. The screenshot is as below:

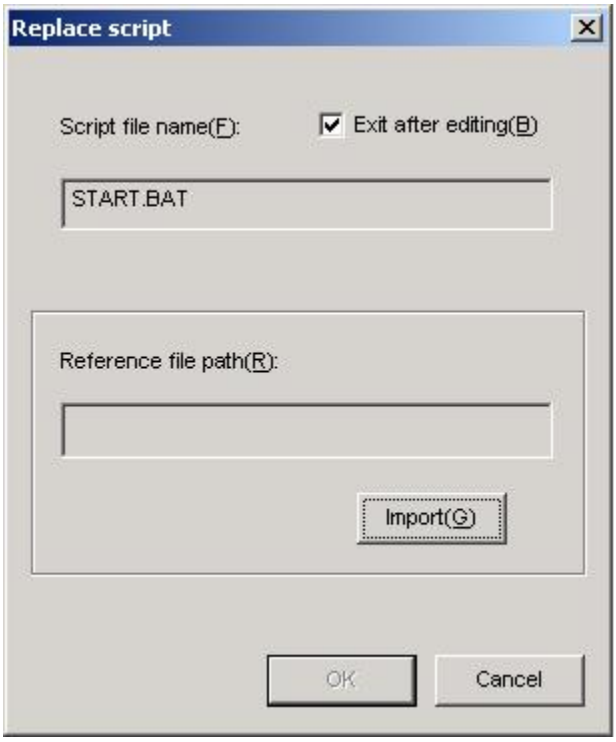


Step 3:
Select the *Scripts* tab and highlight the *start.bat* script.

The Screen shot is as shown:

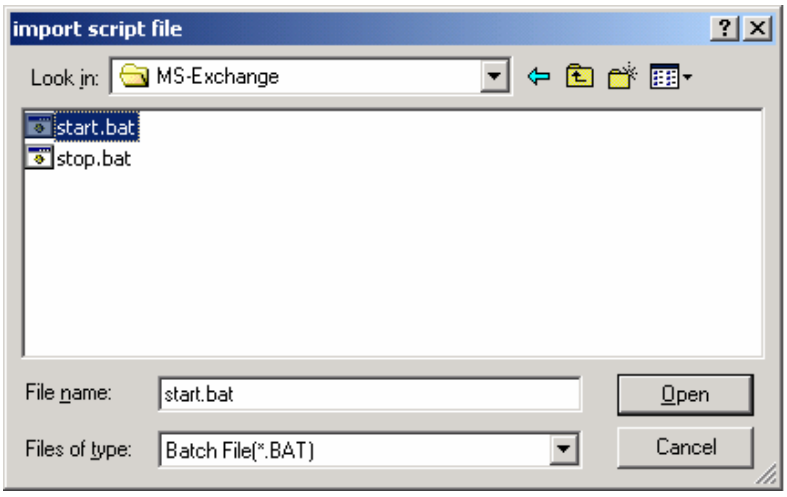


Step 4:
Click on the *Replace* button. This takes you to the following screen:

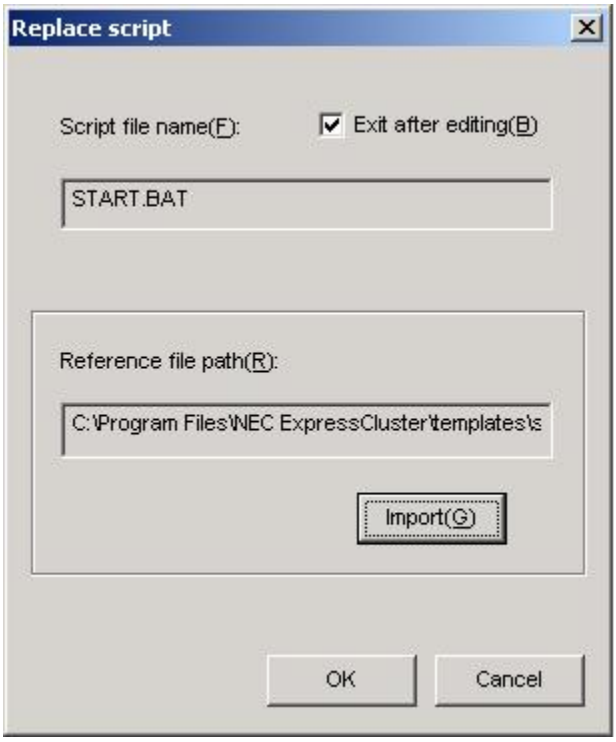


Click on the *Import(G)* button on the screen above.

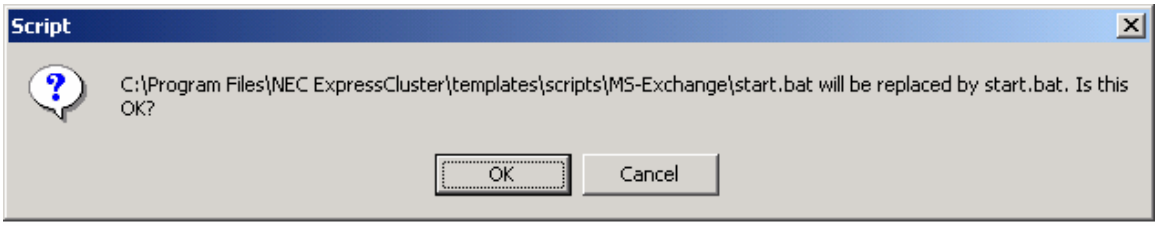
Step 5:
Navigate to *C:\Program Files\NEC ExpressCluster\templates\scripts\MS-Exchange*, select the *start.bat* file and click *Open* as shown:



Step 6:
Click *OK* on the following screen:

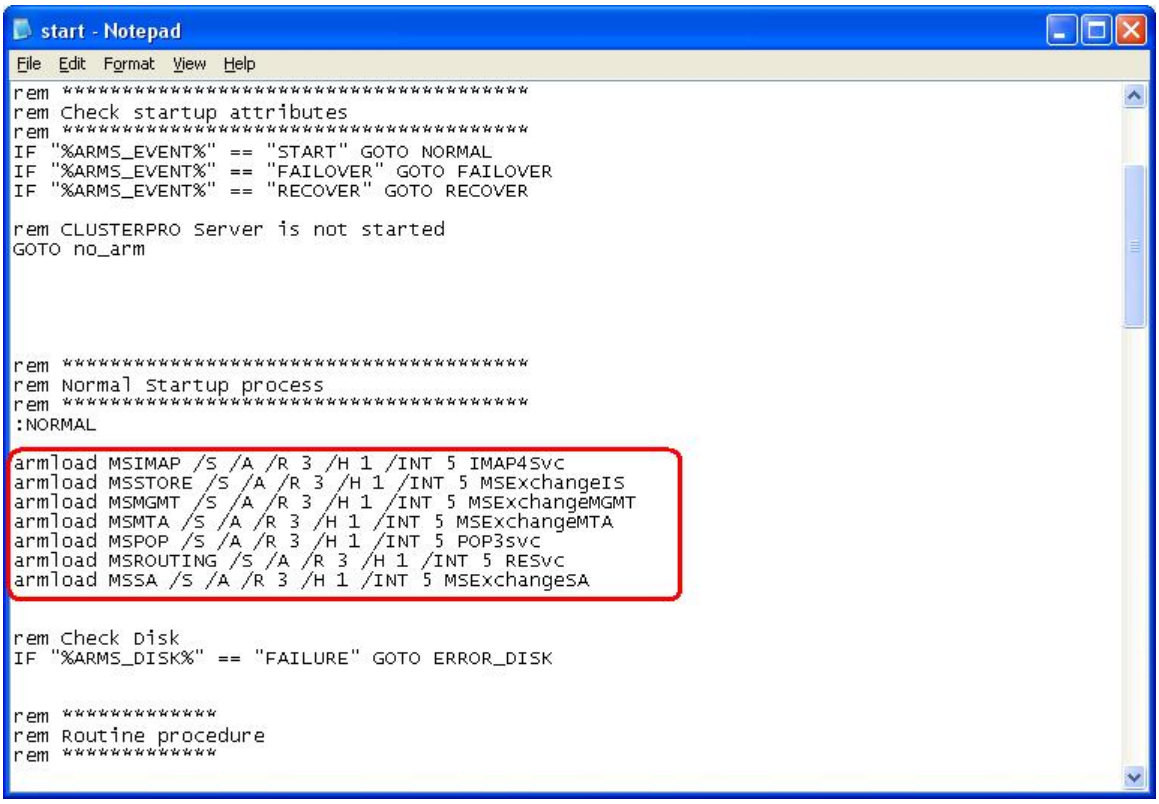


Step 7:
Click *OK* on the following confirmation dialog:



Step 8:
This opens the *start.bat* file in notepad. You should see the following lines under the *":Normal"* section as below:

armload MSIMAP /S /A /R 3 /H 1 /INT 5 IMAP4Svc
armload MSSTORE /S /A /R 3 /H 1 /INT 5 MSExchangeIS
armload MSMGMT /S /A /R 3 /H 1 /INT 5 MSExchangeMGMT
armload MSMTA /S /A /R 3 /H 1 /INT 5 MSExchangeMTA
armload MSPOP /S /A /R 3 /H 1 /INT 5 POP3svc
armload MSROUTING /S /A /R 3 /H 1 /INT 5 RESvc
armload MSSA /S /A /R 3 /H 1 /INT 5 MSExchangeSA

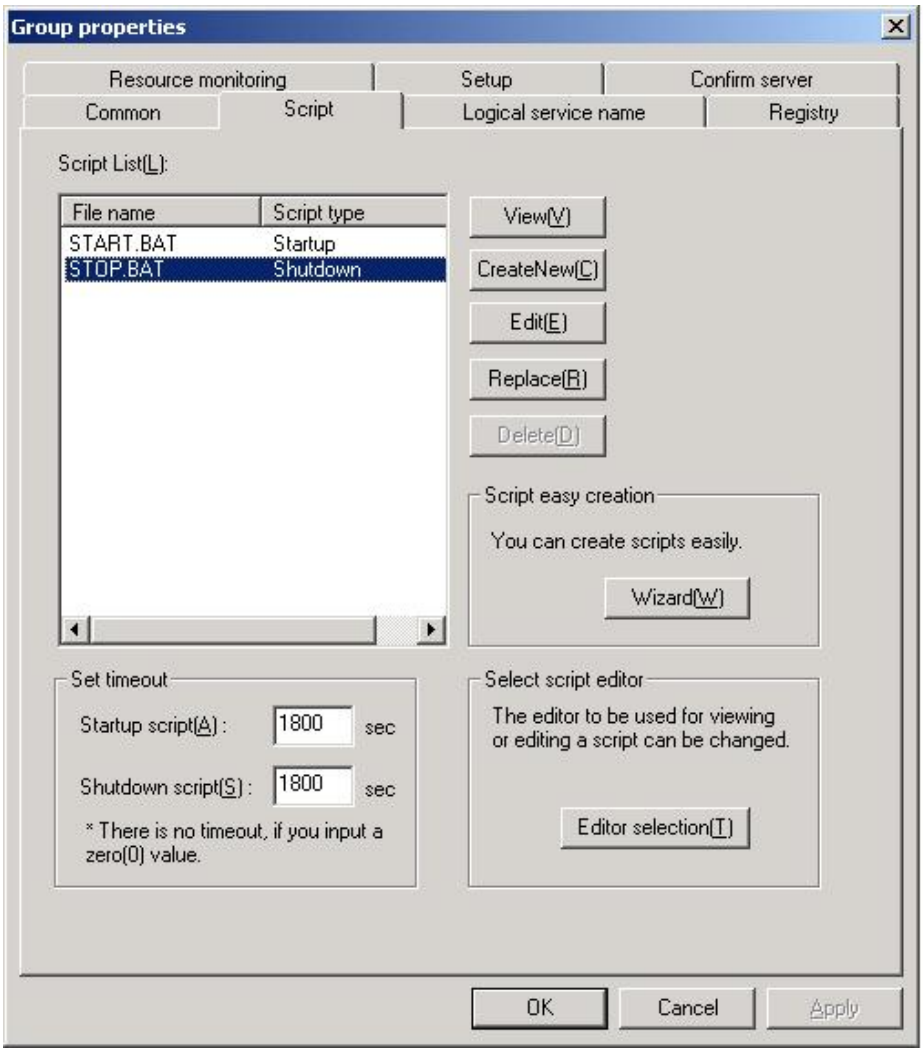

start - Notepad
File Edit Format View Help
rem **
rem Check startup attributes
rem **
IF "%ARMS_EVENT%" == "START" GOTO NORMAL
IF "%ARMS_EVENT%" == "FAILOVER" GOTO FAILOVER
IF "%ARMS_EVENT%" == "RECOVER" GOTO RECOVER
rem CLUSTERPRO Server is not started
GOTO no_arm
rem **
rem Normal Startup process
rem **
:NORMAL
armload MSIMAP /S /A /R 3 /H 1 /INT 5 IMAP4Svc
armload MSSTORE /S /A /R 3 /H 1 /INT 5 MSExchangeIS
armload MSMGMT /S /A /R 3 /H 1 /INT 5 MSExchangeMGMT
armload MSMTA /S /A /R 3 /H 1 /INT 5 MSExchangeMTA
armload MSPOP /S /A /R 3 /H 1 /INT 5 POP3svc
armload MSROUTING /S /A /R 3 /H 1 /INT 5 RESvc
armload MSSA /S /A /R 3 /H 1 /INT 5 MSExchangeSA
rem Check Disk
IF "%ARMS_DISK%" == "FAILURE" GOTO ERROR_DISK
rem **************
rem Routine procedure
rem **************

Please read the following Notes for the explanation of these commands and parameters.

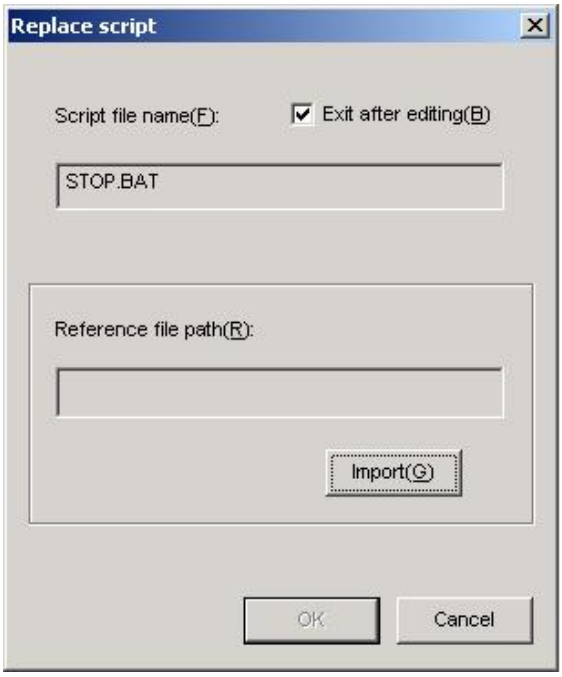
Notes:
"MSIMAP" is an ID used for monitoring IMAP4SVC service. This ID is used for terminating the service using the armkill command. This ID must be a unique name within a cluster. It is case insensitive and can be at most 255 single byte alphanumeric characters.
/S specifies that IMAP4SVC *is a service*
/A indicates that ExpressCluster will not identify it as an error if the service has already started and is running
/R n /H x /INT y indicates that ExpressCluster will restart the service after "y" seconds, if the service has terminated less than or equal to"n" times in "x" hours. In the case where IMAP4SVC *service terminates more than "n" times within "x" hours, the server is rebooted automatically.*

Step 9:
Close the file.

Step 10:
Highlight the *stop.bat* script similar to *Step 3* above.



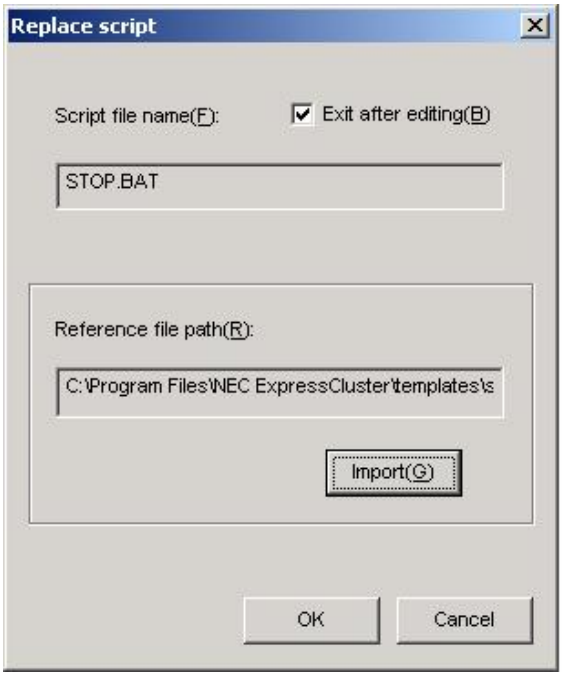
Step 11:
Click on the *Replace* button. This takes you to the following screen:



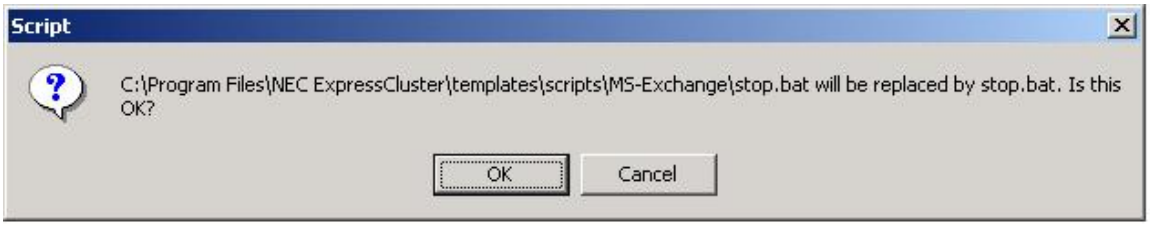
Click on the *Import(G)* button on the screen above.

Step 12:
Navigate to *C:\Program Files\NEC ExpressCluster\templates\scripts\MS-Exchange*, select the *stop.bat* file and click *Open* as shown:

Step 13:
Click *OK* on the following screen:

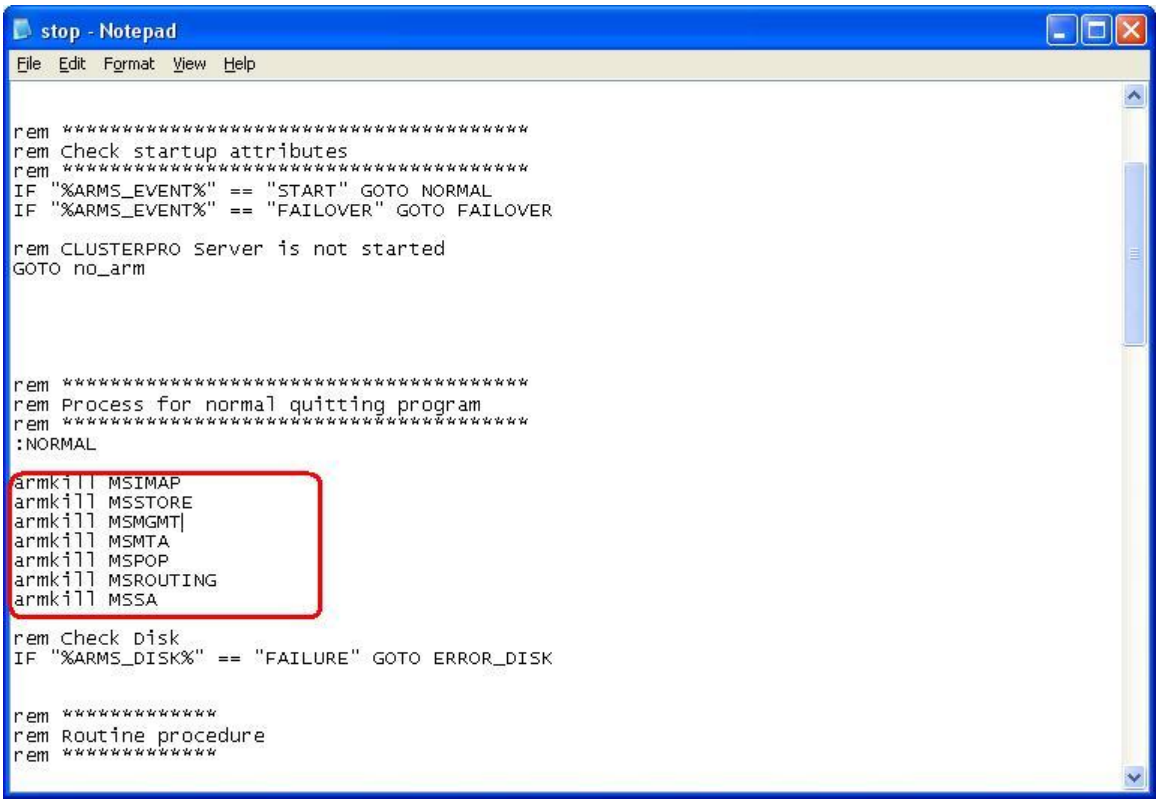


Step 14:
Click *OK* on the following confirmation dialog:

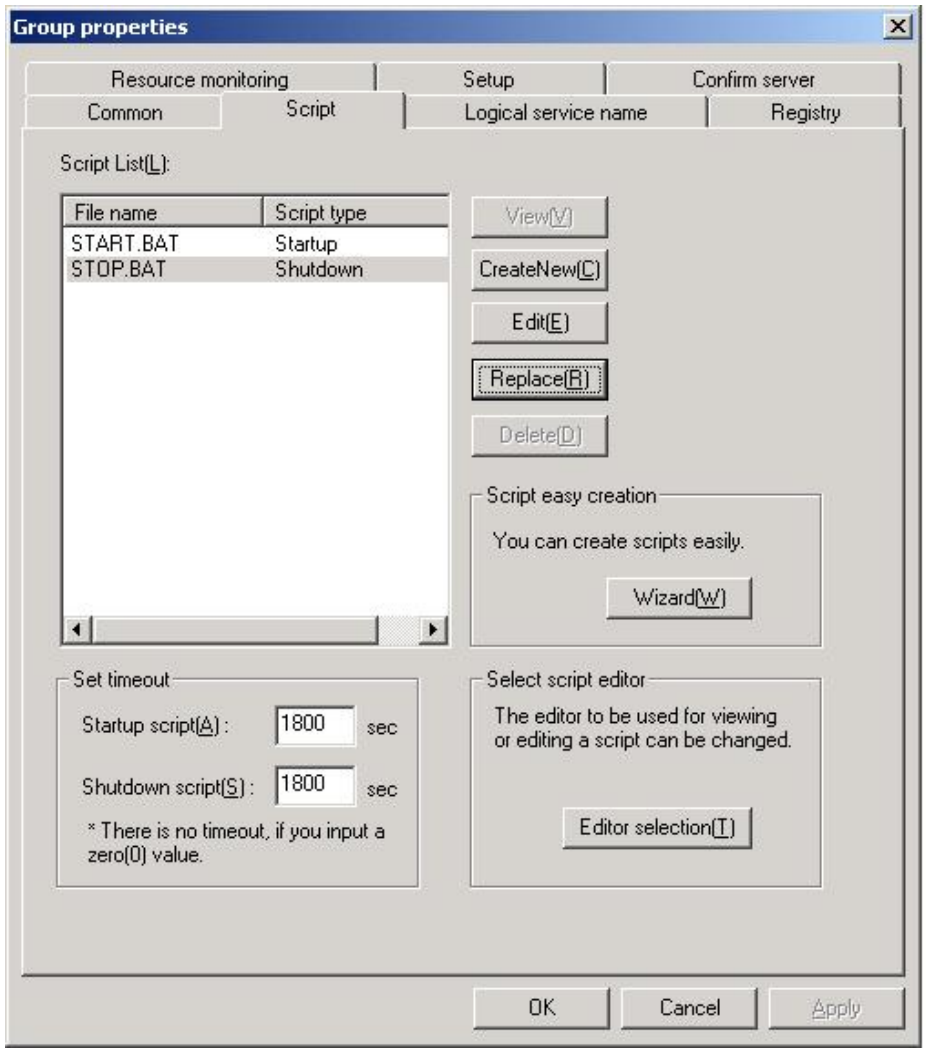


Step 15:
This opens the *stop.bat* file in notepad.. You should see the following lines under the "*:Normal*" section as below:

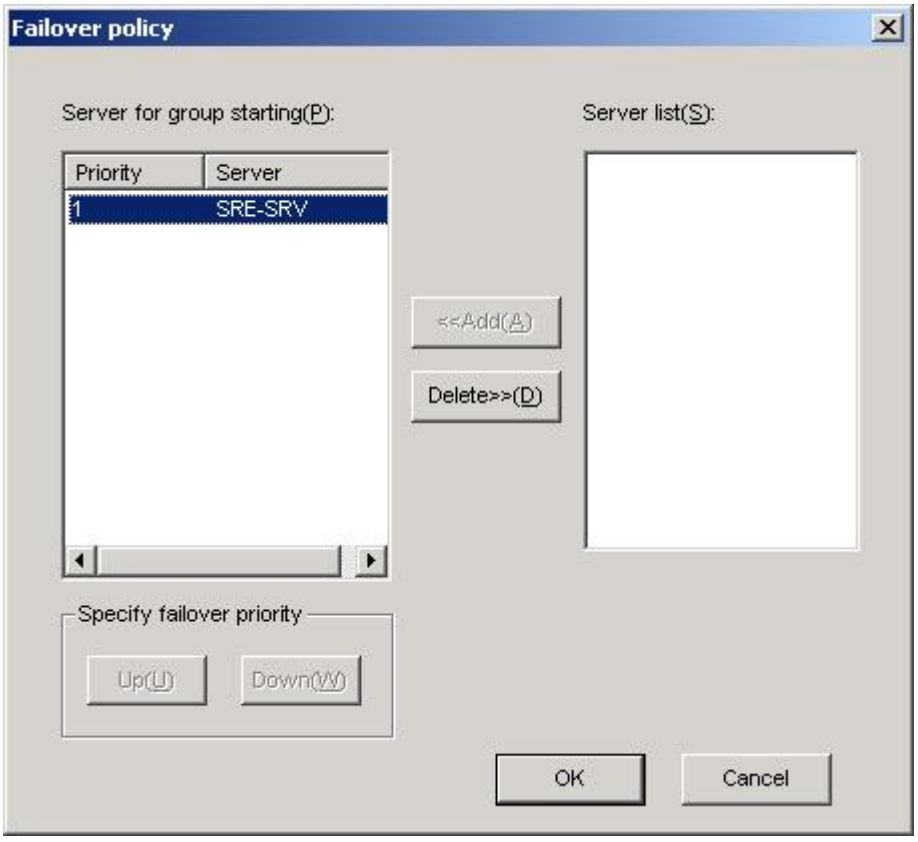
armkill MSIMAP
armkill MSSTORE
armkill MSMGMT
armkill MSMTA
armkill MSPOP
armkill MSROUTING
armkill MSSA



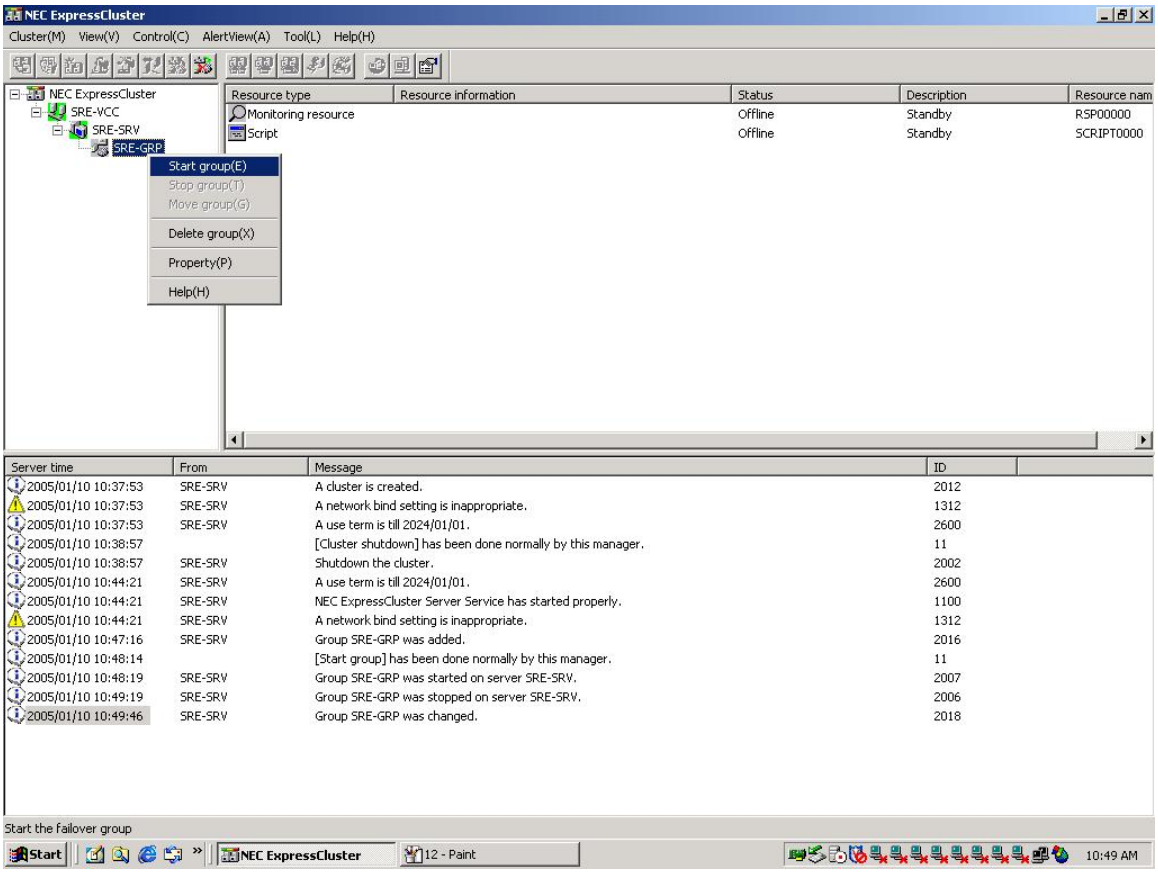
Step 16:
Close the file and click *OK*.



Step 17:
Click *OK* again on the following screen:

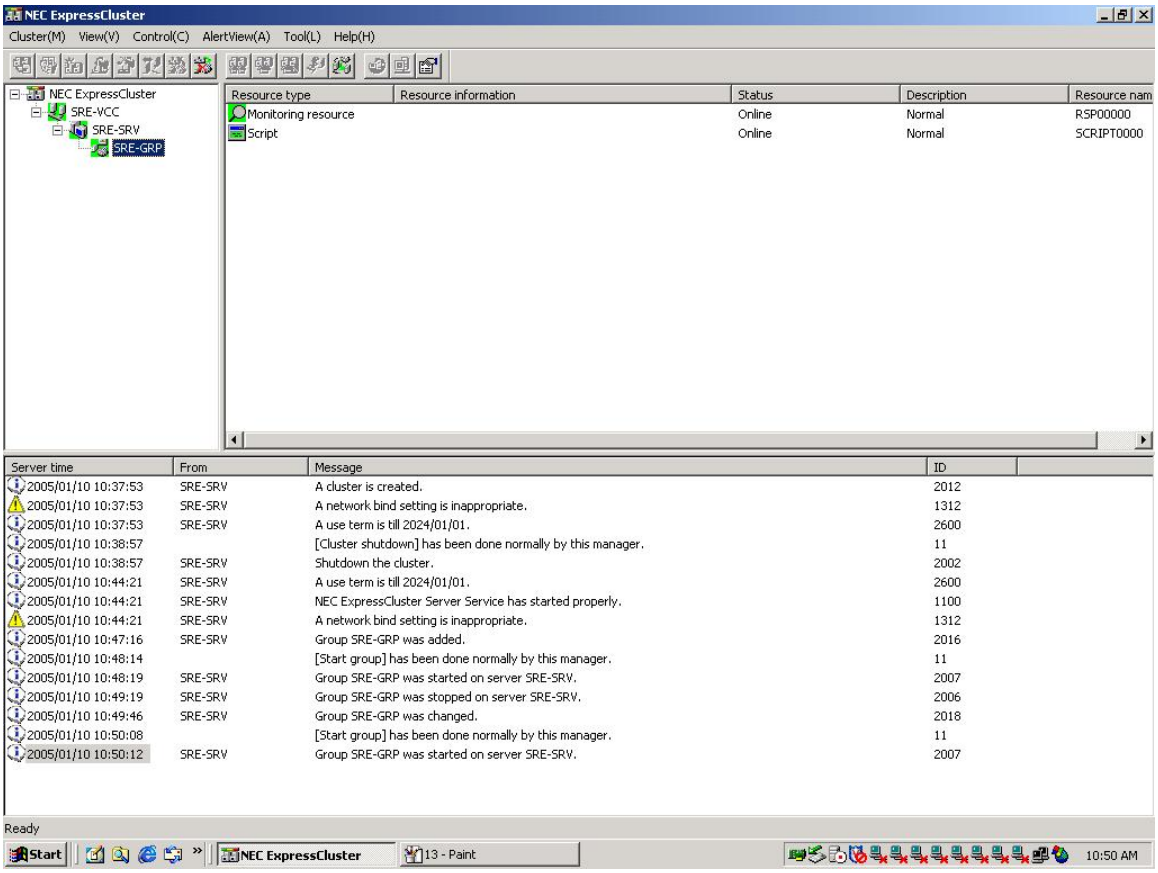


Step 18:
Start the group on the server. Right click on the Failover Group and select *Start Group (E)* to start the group on the server. Follow the screenshots below:



Click *OK* on the screen below:

The Failover Group icon should be Green and all the resources should be Online as below:


NEC ExpressCluster
Cluster(M) View(V) Control(C) AlertView(A) Tool(L) Help(H)
NEC ExpressCluster
SRE-VCC
SRE-SRV
SRE-GRP
Resource type
Resource information
Status
Description
Resource nam
Monitoring resource
Online
Normal
RSP00000
Script
Online
Normal
SCRIPT0000
Server time
From
Message
ID
2005/01/10 10:37:53 SRE-SRV A cluster is created. 2012
2005/01/10 10:37:53 SRE-SRV A network bind setting is inappropriate. 1312
2005/01/10 10:37:53 SRE-SRV A use term is till 2024/01/01. 2600
2005/01/10 10:38:57 [Cluster shutdown] has been done normally by this manager. 11
2005/01/10 10:38:57 SRE-SRV Shutdown the cluster. 2002
2005/01/10 10:44:21 SRE-SRV A use term is till 2024/01/01. 2600
2005/01/10 10:44:21 SRE-SRV NEC ExpressCluster Server Service has started properly. 1100
2005/01/10 10:44:21 SRE-SRV A network bind setting is inappropriate. 1312
2005/01/10 10:47:16 SRE-SRV Group SRE-GRP was added. 2016
2005/01/10 10:48:14 [Start group] has been done normally by this manager. 11
2005/01/10 10:48:19 SRE-SRV Group SRE-GRP was started on server SRE-SRV. 2007
2005/01/10 10:49:19 SRE-SRV Group SRE-GRP was stopped on server SRE-SRV. 2006
2005/01/10 10:49:46 SRE-SRV Group SRE-GRP was changed. 2018
2005/01/10 10:50:08 [Start group] has been done normally by this manager. 11
2005/01/10 10:50:12 SRE-SRV Group SRE-GRP was started on server SRE-SRV. 2007
Ready
Start
NEC ExpressCluster
13 - Paint
10:50 AM

Please verify that the following services configured in the cluster start successfully on the server:

1. IMAP4Svc
2. MSExchangeIS
3. MSExchangeMGMT
4. MSExchangeMTA
5. POP3svc
6. RESvc
7. MSExchangeSA

In case either or all of the above processes terminate, they are automatically restarted after 5 seconds. In case they terminate more than 3 times in 1 hour, the server is rebooted automatically.

This completes the configuration for monitoring the Microsoft Exchange 2000 Server processes.

Chapter 8: General Customization Process

This chapter explains the general process to customize NEC ExpressCluster SRE to monitor and restart arbitrary application services.

Command Reference

The following section explains the functionality and usage of the ***ARMLOAD*** and ***ARMKILL*** commands (used in *start.bat* and *stop.bat* scripts respectively) to monitor and restart arbitrary services.

ARMLOAD

Starts up a service. If a fault occurs in the started service, the service is restarted. The monitoring of the occurrence of fault continues until the application or service is terminated by the ***ARMKILL*** command. A fault means that the service is abnormally terminated.

Usage:
ARMLOAD *watchID* /S [/A] <mode> *service-name*

You can specify the followings as <mode>:
/R retry [/H hour] [/SCR] [/WAIT time] [/INT time]

Parameters:

watchID
This is the ID used for monitoring. This ID is used for terminating the service by the ***ARMKILL*** command. The ID must be unique name within a cluster. IDs that begin with "NEC_" are reserved. They cannot be used by users. Set the ID using at most 255 single-byte alphanumeric characters. (It is case insensitive).

/R retry
Causes the application or service to be monitored and specifies the threshold value for the number of restart attempts at that time. The specification range is from 1 to 9.

/H hour
This is the time until the restart count is returned to zero for the service. The time can be specified in units of one hour. This parameter can be omitted. The specification range is from 1 to 24. If this parameter is omitted when the /R parameter is specified, the restart count is not reset.

/SCR

Indicates that when the monitoring service is restarted, it is restarted from a script. This parameter can be omitted. If this parameter is omitted when the /R parameter is specified, the service is restarted.

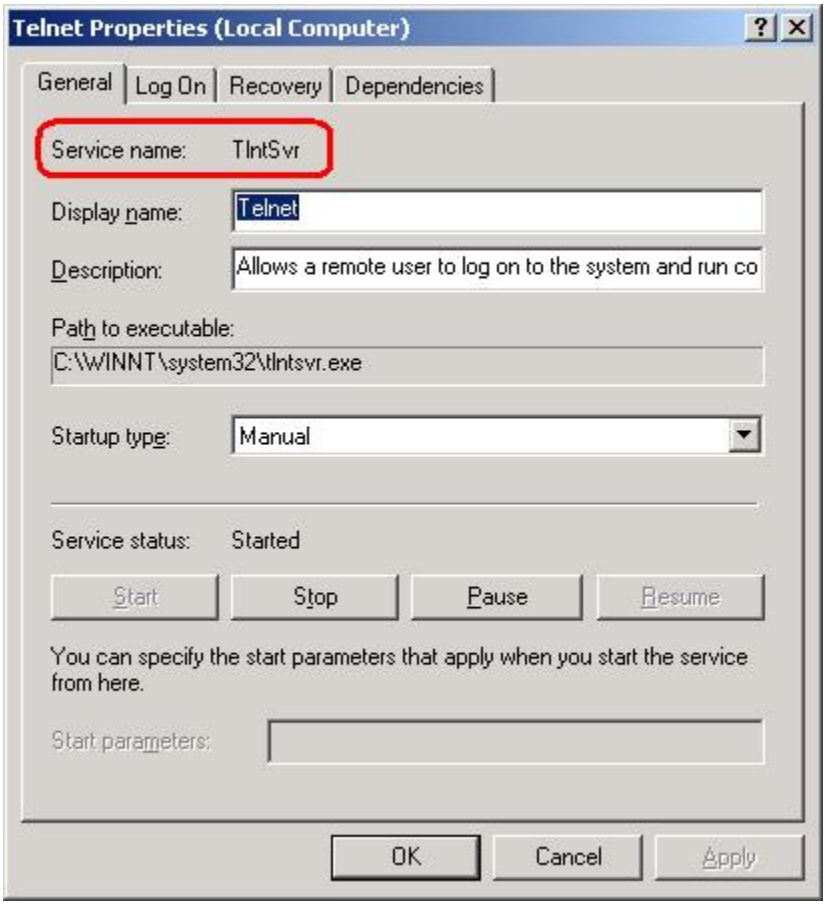
/S
Specifies that the entity to be started up is a service. This parameter is mandatory.

/A
Indicates that ExpressCluster will not identify it as an error if the service has already started and is running. Please specify this parameter in case the start up type of the service is [AUTOMATIC] *(in Settings-> Control Panel -> Administrative Tools -> Services)*

/WAIT time
Used to specify the time in seconds required for waiting for the completion of service startup. If this parameter is specified, the control is not returned until service startup is completed or until time does not exceed the specified waiting time. This parameter can be omitted. If the parameter is omitted, waiting for startup completion will not be executed. The specified range is from 0 to 3600. If 0 is specified, waiting time becomes infinity.

/INT time
Used to specify the time in seconds for re-starting a single service or a restart interval of the script. This parameter can be omitted. If the parameter is omitted, the re-start interval is 0 seconds. This parameter becomes effective when /R or/R, /SCR option is specified. Specified range is from 0 to 3600.

service-name
This is the name of the service that you would like to monitor. This is case ***in-sensitive***. e.g. If you would like to monitor the *Telnet* service, use *Start->Settings-> Control Panel -> Administrative Tools -> Services* and double click on *Telnet* service. Use the service name as ***tlntsvr*** as shown below:



ARMKILL

Terminates the service that was started up by using the ***ARMLOAD*** command.

Usage:
ARMKILL *watchID* [/C | /T time]

Parameters:

watchID
This is the monitoring ID of the service to be terminated. For this ID, use the one that was specified when the service was started up by the ***ARMLOAD*** command.

/C
Cancels the monitoring of the service but does not terminate the service.
This parameter can be omitted. If it is omitted, the service is terminated. Also, this parameter cannot be specified at the same time as the /T parameter.

/T time

Sets the wait time for waiting until the service stops completely. The range that can be specified is from 0 to 3600 seconds. If 0 is specified, the wait time is unlimited. This parameter can be omitted. If it is omitted, the wait time is 40 seconds. Also, this parameter cannot be specified at the same time as the /C parameter.

As an example, the following section explains the steps required to customize the scripts for monitoring an arbitrary service *(e.g. Telnet* service*)*.

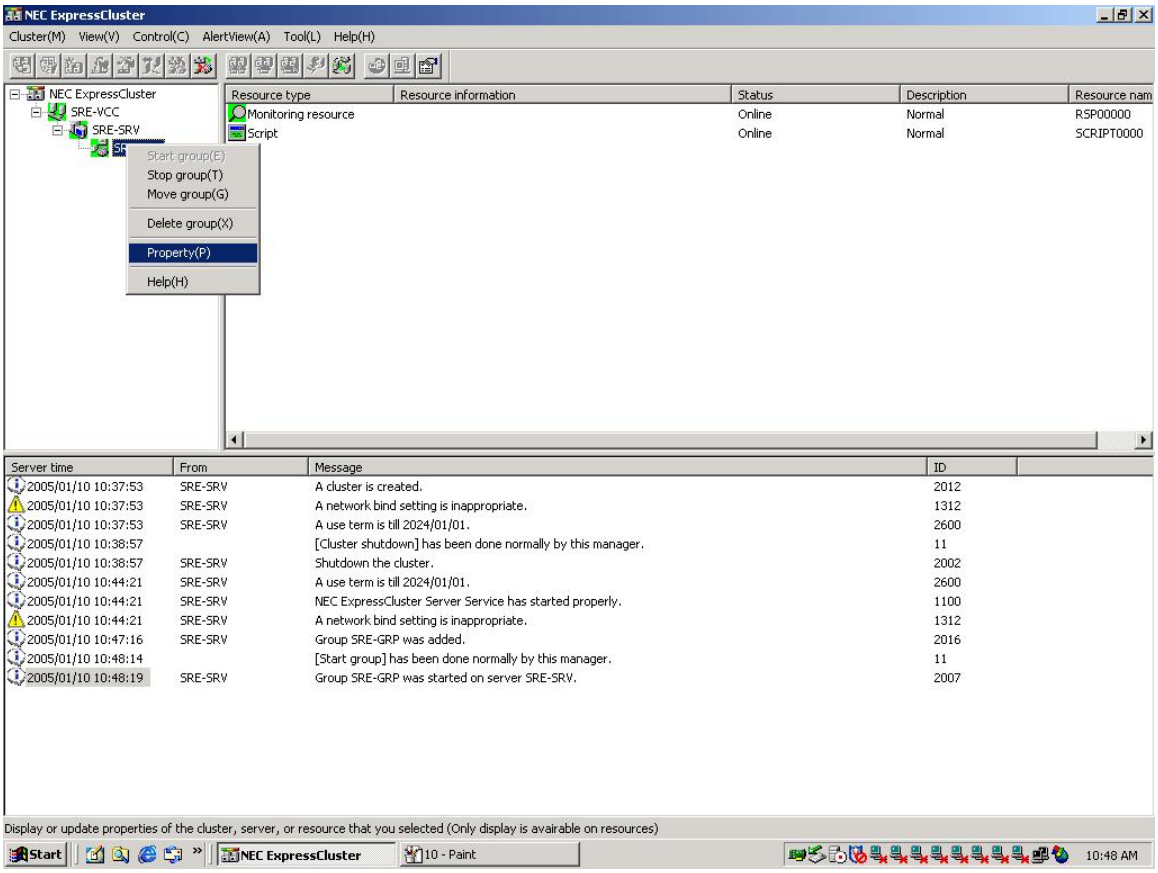
Prerequisites

Please verify that the service you would like to monitor (in this case *Telnet* service) starts and stops normally using *Control Panel -> Administrative tools -> Services*. If the *Telnet* service has started, please stop it using *Control Panel -> Administrative tools -> Services*

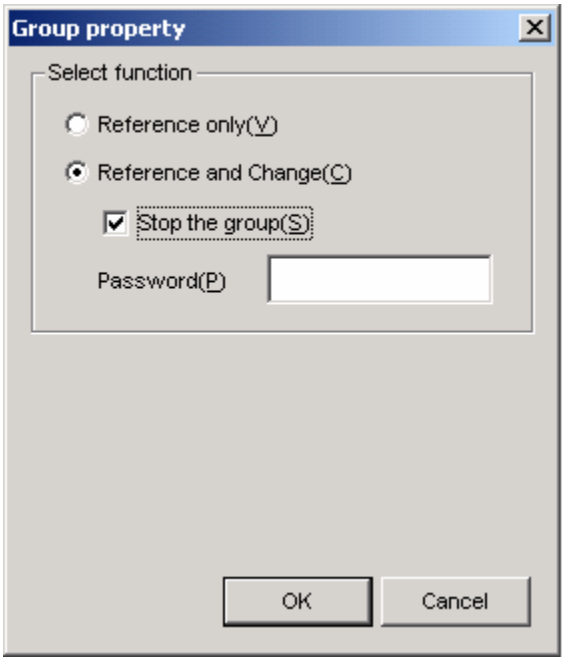
Customization Steps

Step 1:
Right Click on the Fail over Group in the ExpressCluster Manager UI and select the *Property(P)* menu item.

The Screen shot is as shown:

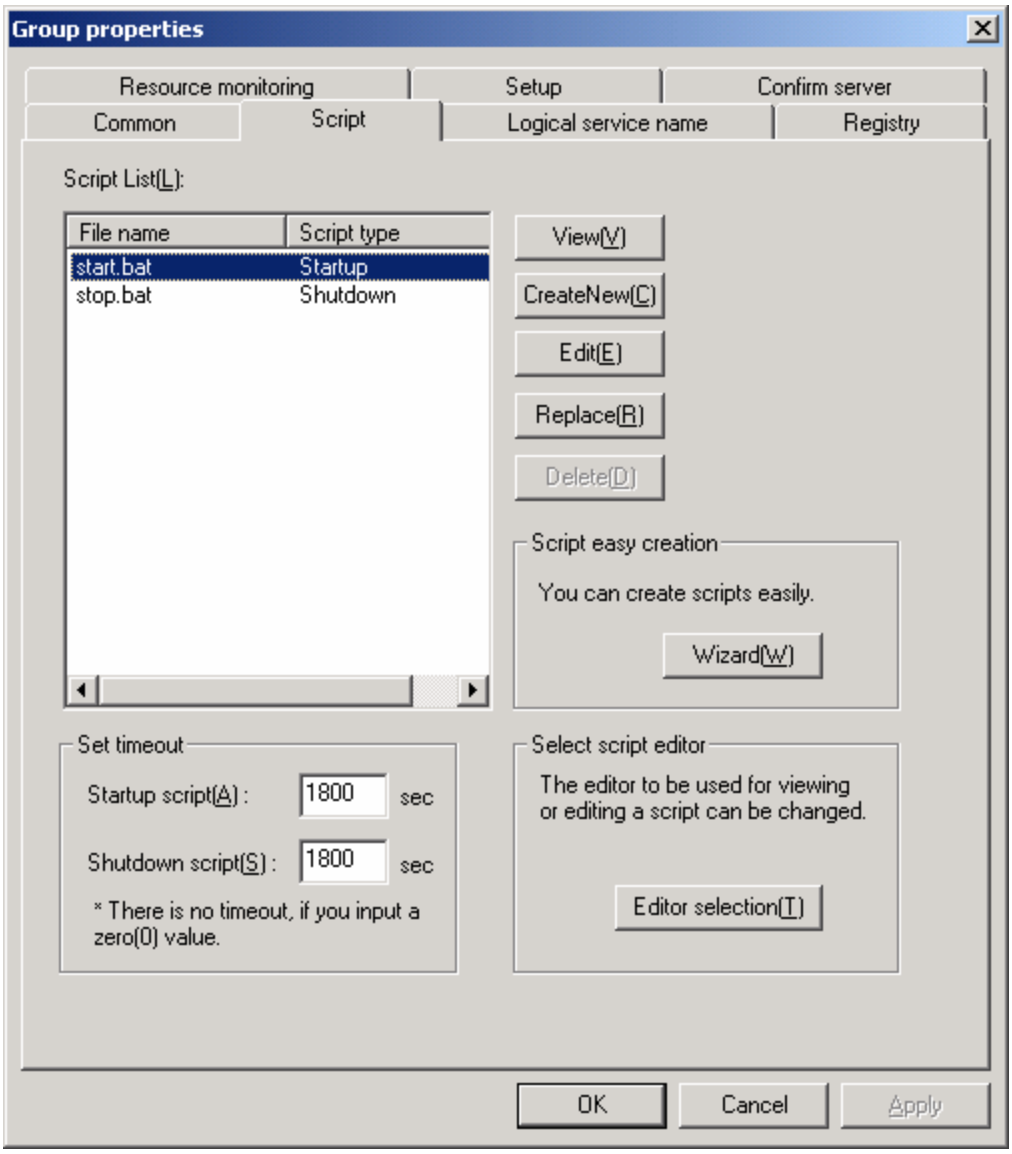

NEC ExpressCluster
Cluster(M) View(V) Control(C) AlertView(A) Tool(L) Help(H)
NEC ExpressCluster
SRE-VCC
SRE-SRV
Start group(E)
Stop group(T)
Move group(G)
Delete group(X)
Property(P)
Help(H)
Resource type
Resource information
Status
Description
Resource nam
Monitoring resource
Online
Normal
RSP00000
Script
Online
Normal
SCRIPT0000
Server time
From
Message
ID
2005/01/10 10:37:53 SRE-SRV A cluster is created. 2012
2005/01/10 10:37:53 SRE-SRV A network bind setting is inappropriate. 1312
2005/01/10 10:37:53 SRE-SRV A use term is till 2024/01/01. 2600
2005/01/10 10:38:57 [Cluster shutdown] has been done normally by this manager. 11
2005/01/10 10:38:57 SRE-SRV Shutdown the cluster. 2002
2005/01/10 10:44:21 SRE-SRV A use term is till 2024/01/01. 2600
2005/01/10 10:44:21 SRE-SRV NEC ExpressCluster Server Service has started properly. 1100
2005/01/10 10:44:21 SRE-SRV A network bind setting is inappropriate. 1312
2005/01/10 10:47:16 SRE-SRV Group SRE-GRP was added. 2016
2005/01/10 10:48:14 [Start group] has been done normally by this manager. 11
2005/01/10 10:48:19 SRE-SRV Group SRE-GRP was started on server SRE-SRV. 2007
Display or update properties of the cluster, server, or resource that you selected (Only display is avairable on resources)
Start
NEC ExpressCluster
10 - Paint
10:48 AM

Step 2:
Select the *Reference and Change (C)* radio button. Also check the *Stop the group(S)* check box and Click *OK*. The screenshot is as below:



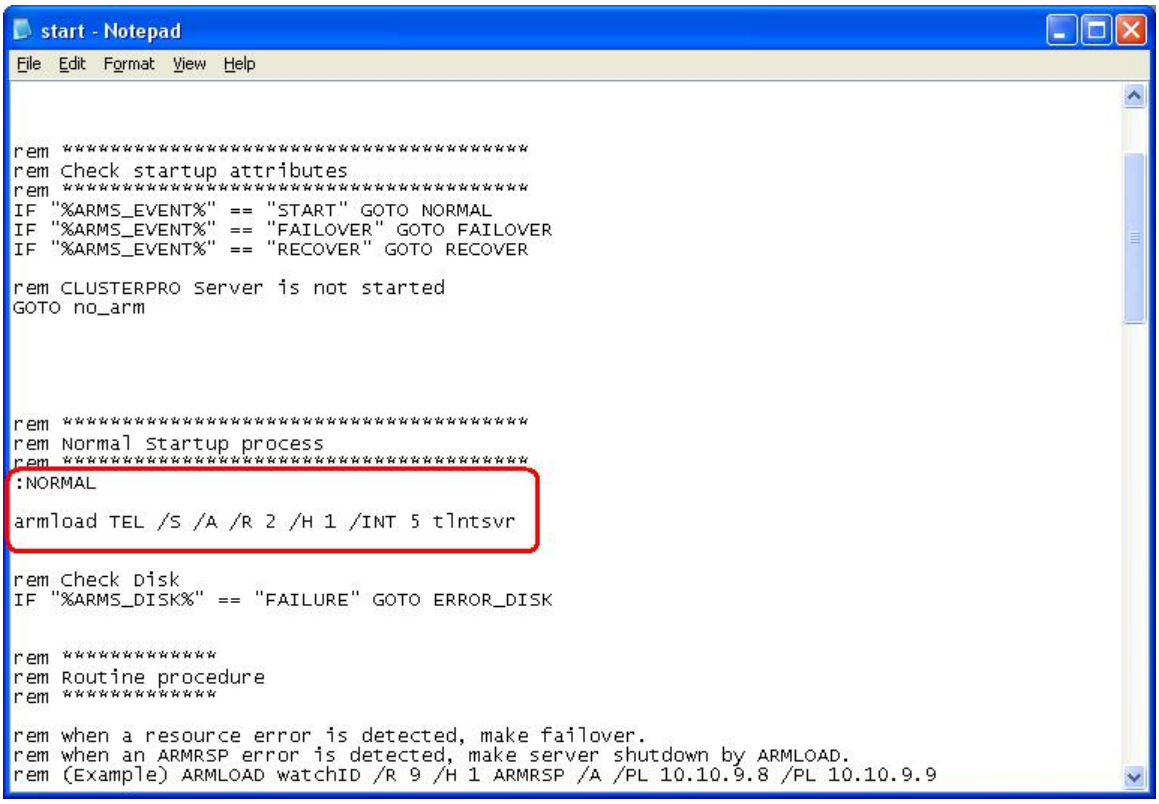
Step 3:
Select the *Scripts* tab and highlight the *start.bat* script.

The Screen shot is as shown:



Step 4:
Click on the *Edit* button. This opens the *start.bat* file in notepad. Edit the *start.bat* file to configure the monitoring of *Telnet* service by adding the following lines under the *":Normal"* section as below:

armload TEL /S /A /R 2 /H 1 /INT 5 tlntsvr

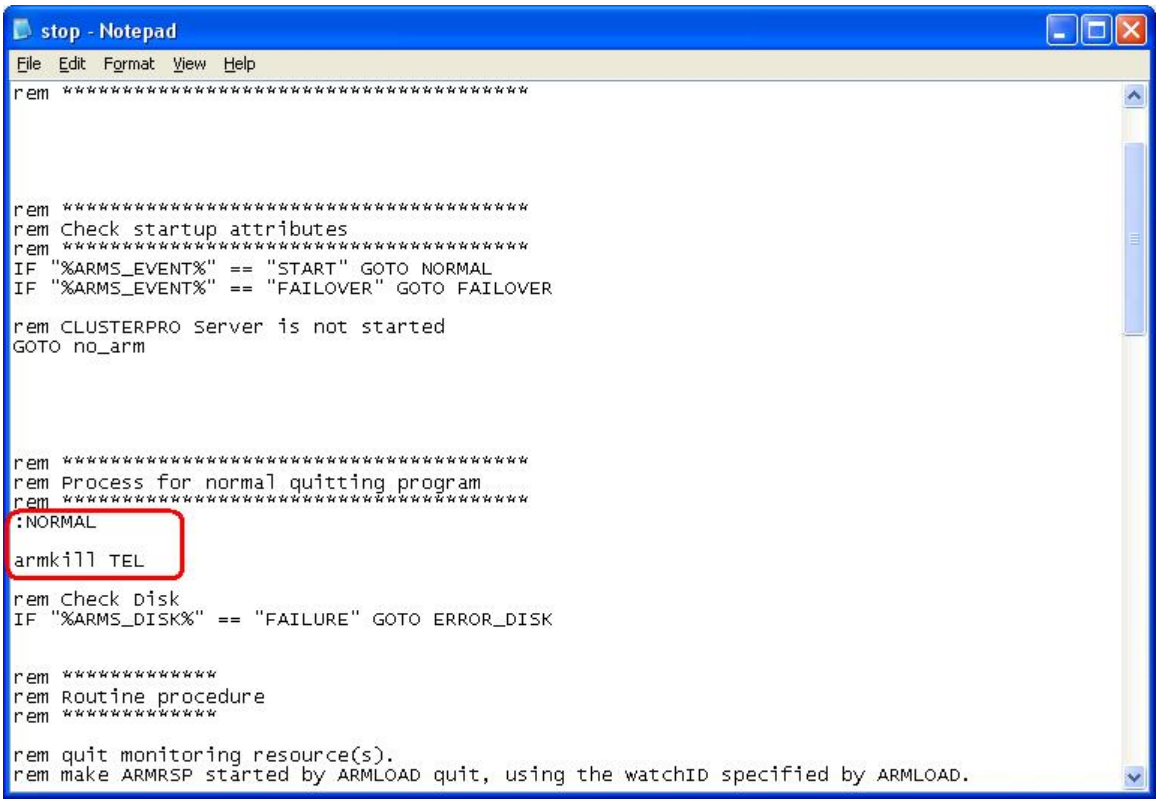

start - Notepad
File Edit Format View Help
rem **
rem Check startup attributes
rem **
IF "%ARMS_EVENT%" == "START" GOTO NORMAL
IF "%ARMS_EVENT%" == "FAILOVER" GOTO FAILOVER
IF "%ARMS_EVENT%" == "RECOVER" GOTO RECOVER
rem CLUSTERPRO Server is not started
GOTO no_arm
rem **
rem Normal Startup process
rem **
:NORMAL
armload TEL /S /A /R 2 /H 1 /INT 5 tlntsvr
rem Check Disk
IF "%ARMS_DISK%" == "FAILURE" GOTO ERROR_DISK
rem **************
rem Routine procedure
rem **************
rem when a resource error is detected, make failover.
rem when an ARMRSP error is detected, make server shutdown by ARMLOAD.
rem (Example) ARMLOAD watchID /R 9 /H 1 ARMRSP /A /PL 10.10.9.8 /PL 10.10.9.9

Step 5:
Save the file and click *OK*.

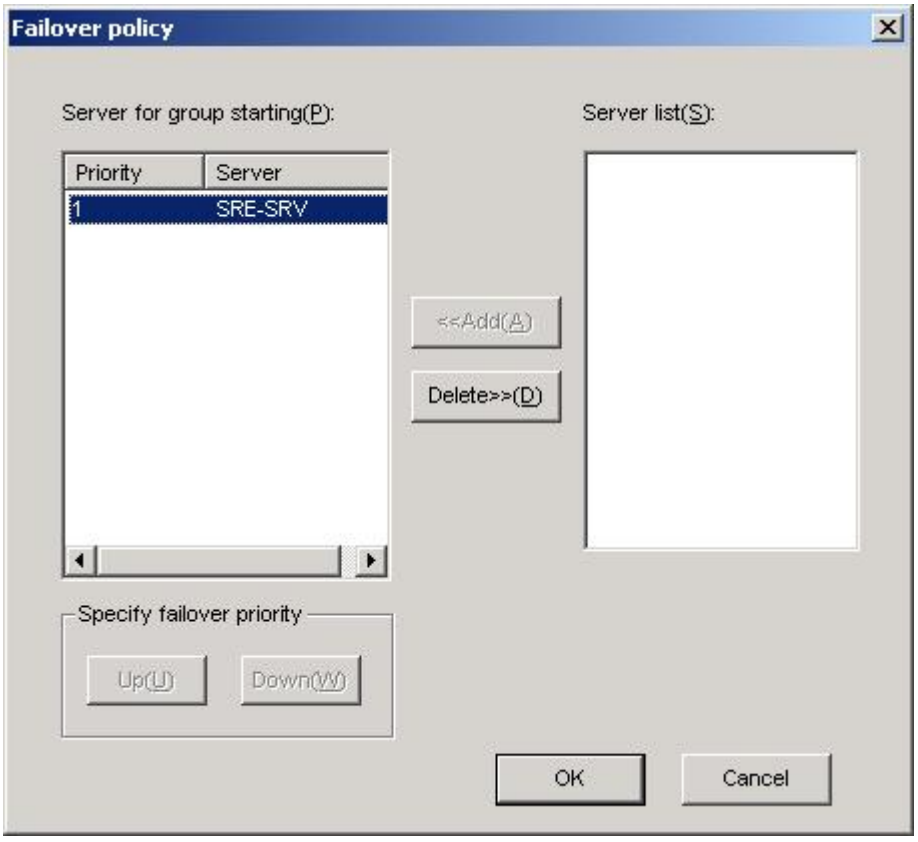
Step 6:
Highlight the *stop.bat* script similar to *Step 3* above.

Step 7:
Click on the *Edit* button. This opens the *stop.bat* file in notepad. Edit the *stop.bat* file by adding the following lines under the "*:Normal*" section as below:

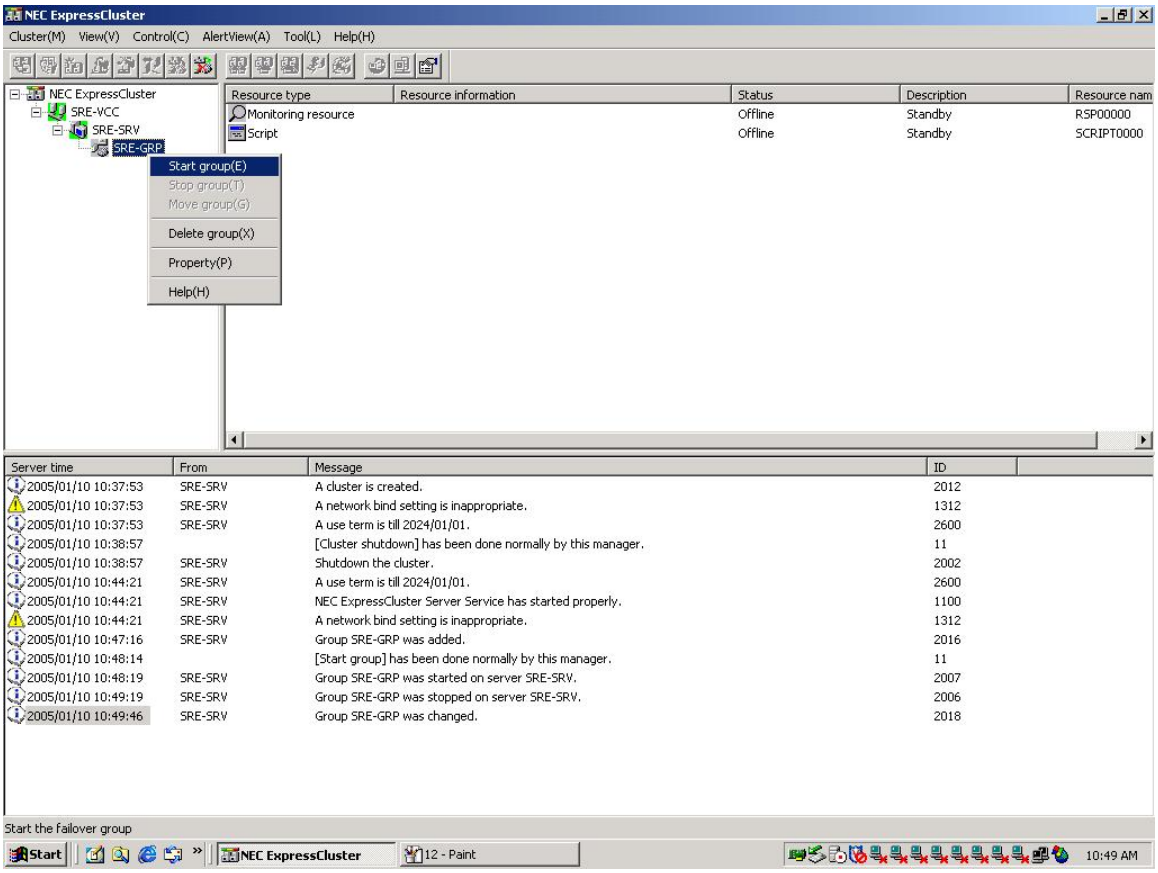
armkill TEL



Step 8:
Save the file and click *OK*. Click *OK* again on the following screen:

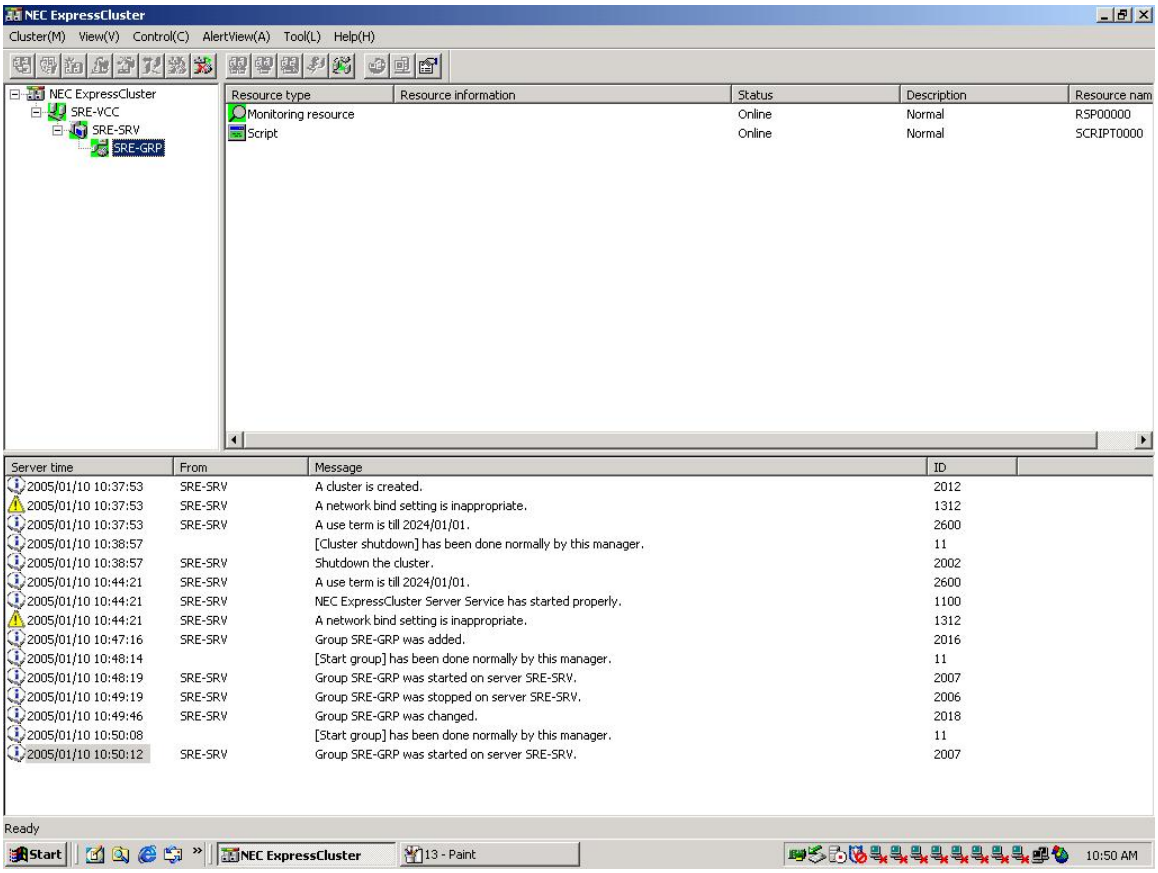


Step 9:
Start the group on the server. Right click on the Failover Group and select *Start Group (E)* to start the group on the server. Follow the screenshots below:



Click *OK* on the screen below:

The Failover Group icon should be Green and all the resources should be Online as below:


NEC ExpressCluster
Cluster(M) View(V) Control(C) AlertView(A) Tool(L) Help(H)
NEC ExpressCluster
SRE-VCC
SRE-SRV
SRE-GRP
Resource type
Resource information
Status
Description
Resource nam
Monitoring resource
Online
Normal
RSP00000
Script
Online
Normal
SCRIPT0000
Server time
From
Message
ID
2005/01/10 10:37:53 SRE-SRV A cluster is created. 2012
2005/01/10 10:37:53 SRE-SRV A network bind setting is inappropriate. 1312
2005/01/10 10:37:53 SRE-SRV A use term is till 2024/01/01. 2600
2005/01/10 10:38:57 [Cluster shutdown] has been done normally by this manager. 11
2005/01/10 10:38:57 SRE-SRV Shutdown the cluster. 2002
2005/01/10 10:44:21 SRE-SRV A use term is till 2024/01/01. 2600
2005/01/10 10:44:21 SRE-SRV NEC ExpressCluster Server Service has started properly. 1100
2005/01/10 10:44:21 SRE-SRV A network bind setting is inappropriate. 1312
2005/01/10 10:47:16 SRE-SRV Group SRE-GRP was added. 2016
2005/01/10 10:48:14 [Start group] has been done normally by this manager. 11
2005/01/10 10:48:19 SRE-SRV Group SRE-GRP was started on server SRE-SRV. 2007
2005/01/10 10:49:19 SRE-SRV Group SRE-GRP was stopped on server SRE-SRV. 2006
2005/01/10 10:49:46 SRE-SRV Group SRE-GRP was changed. 2018
2005/01/10 10:50:08 [Start group] has been done normally by this manager. 11
2005/01/10 10:50:12 SRE-SRV Group SRE-GRP was started on server SRE-SRV. 2007
Ready
Start
NEC ExpressCluster
13 - Paint
10:50 AM

Please verify that the *Telnet* service starts successfully on the server.

In case the *Telnet* service terminates, it is automatically restarted after 5 seconds.
If it terminates more than 2 times in 1 hour, the server is rebooted automatically.

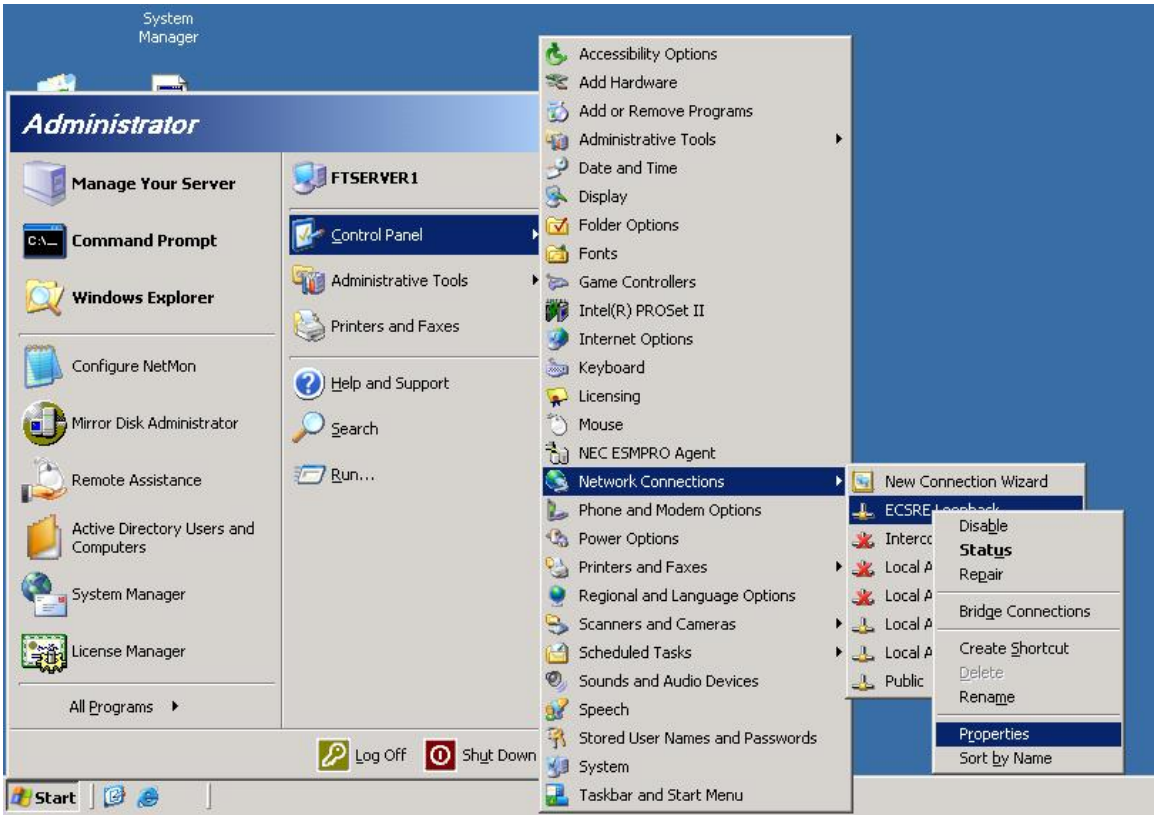
Appendix A: Modifying IP Addresses

You could either change the default IP addresses assigned to the Loopback Adapter of the server. Please ensure that you identify two ***static*** IP addresses in different network segments that are ***unique*** on the network. This requirement is mandatory. The ***first IP address*** is used to register the Cluster Server with the Manager and the ***second IP address*** is used as the Primary Interconnect IP address.

The steps below change the default IP address 10.123.187.1/255.255.255.0 to 20.20.20.1/255.255.255.0 and 192.168.93.1/255.255.255.0 to 131.241.74.17/255.255.255.0.

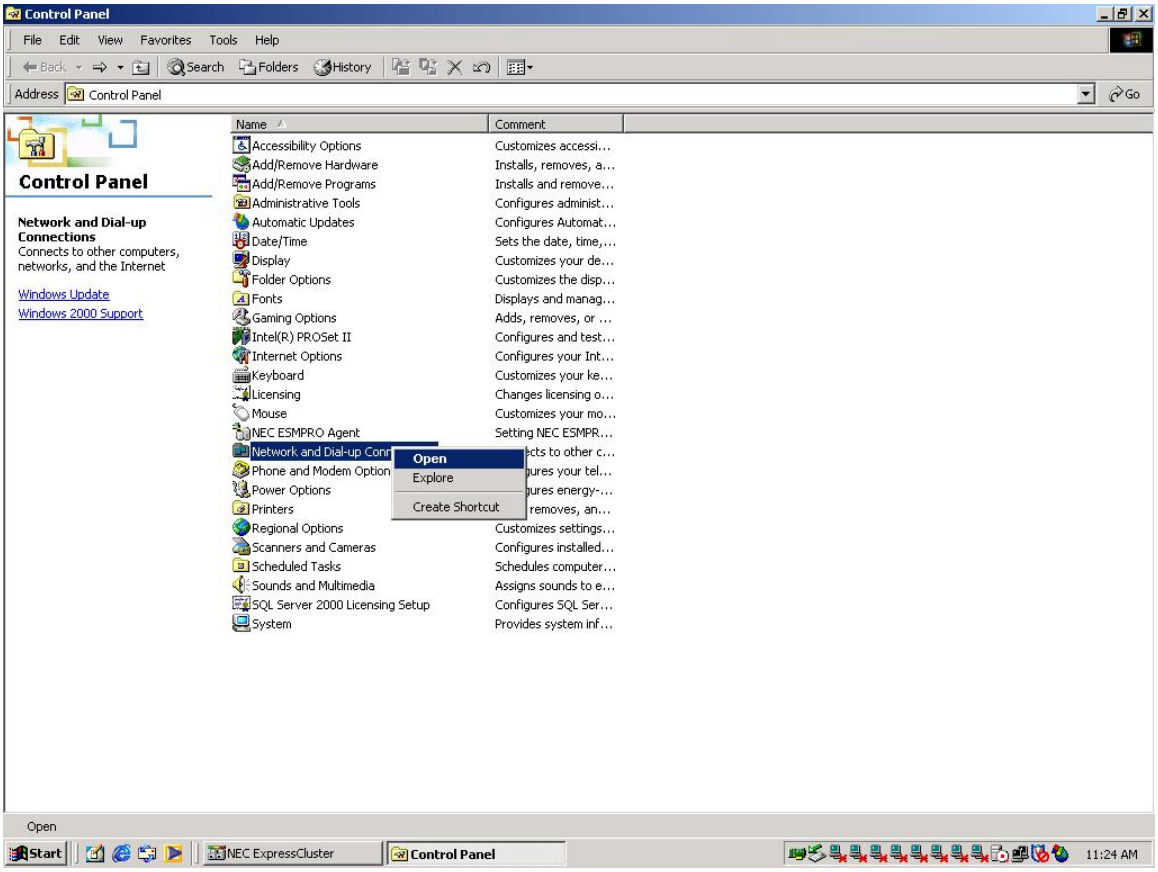
The steps below are applicable for both Windows 2000 and Windows 2003 unless indicated otherwise.

Step 1:
<Windows 2003>
Navigate to *Start->Control Panel -> Network Connections*, right click on *ECSRE Loopback* and select *Properties* as shown below:

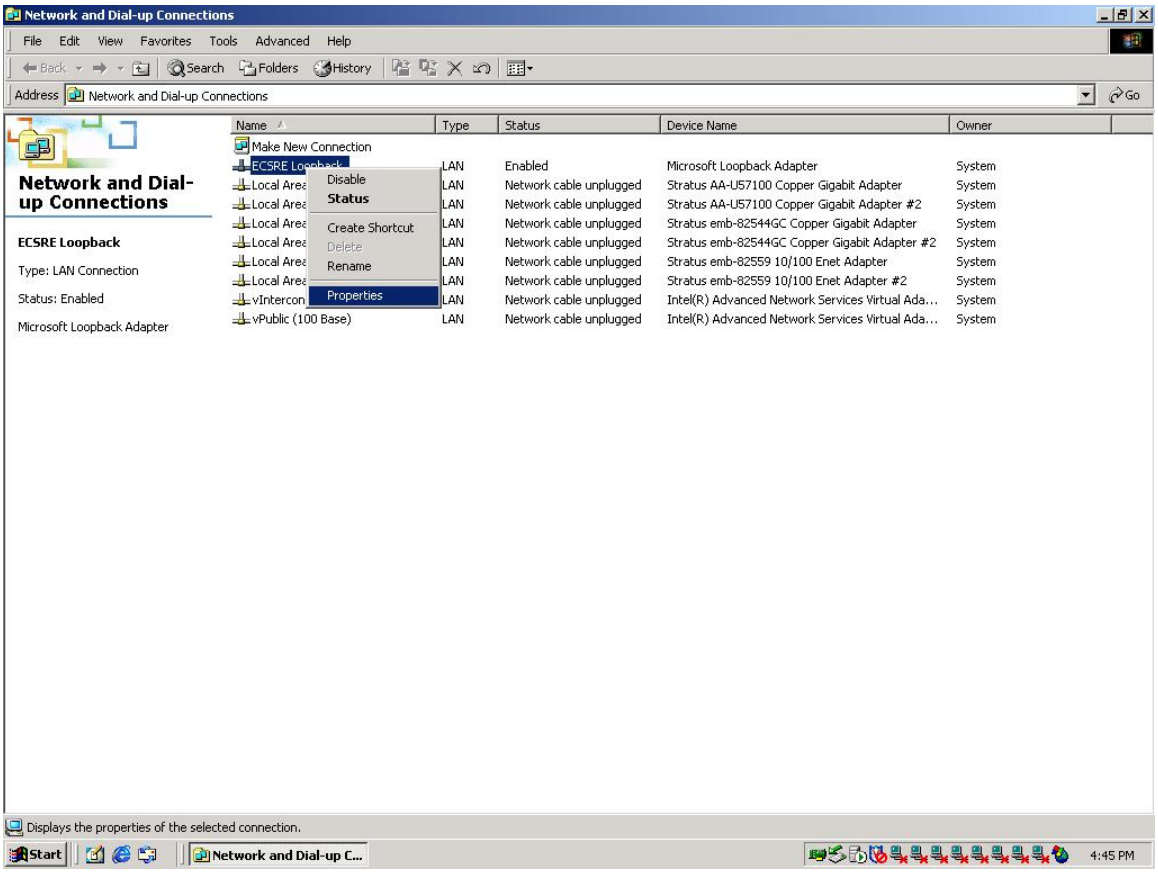


<Windows 2000>

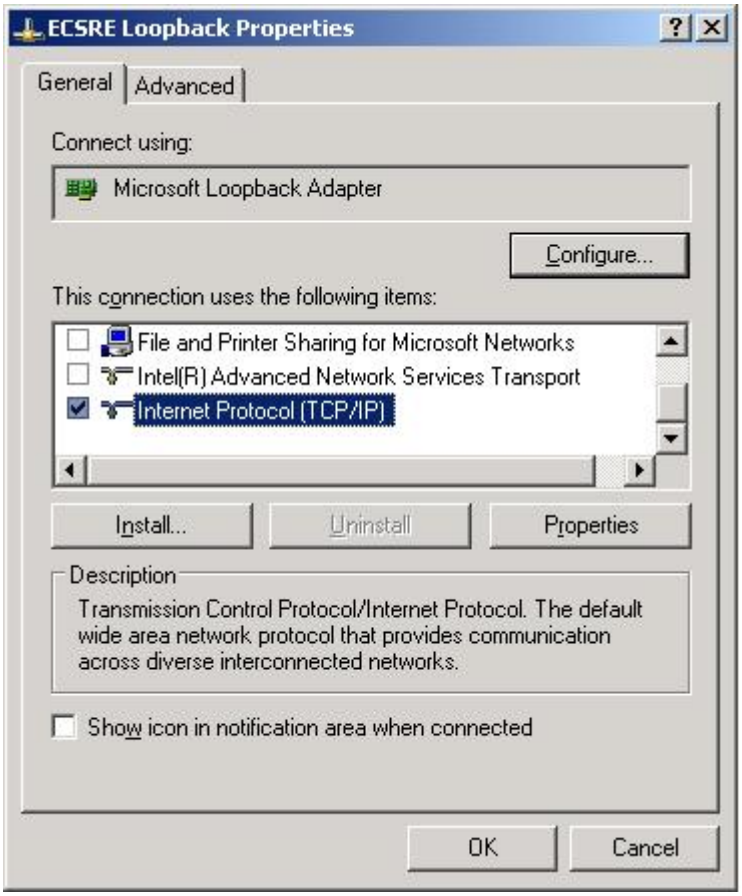
Use *Start-> Settings-> Control Panel-> Network and Dial up Connections.* Right click on *Network and Dial up Connections* and click *Open:*



Right click on *ECSRE Loopback* and select *Properties* as shown below:

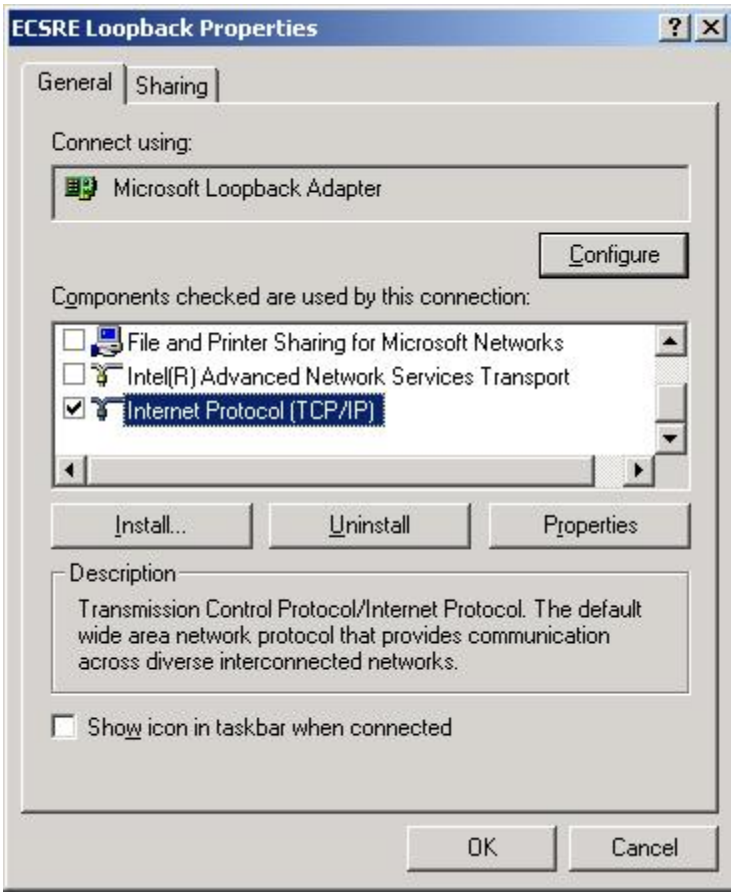

Network and Dial-up Connections
File Edit View Favorites Tools Advanced Help
Back Search Folders History
Address Network and Dial-up Connections
Go
Network and Dial-up Connections
ECSRE Loopback
Type: LAN Connection
Status: Enabled
Microsoft Loopback Adapter
Name Type Status Device Name Owner
Make New Connection
ECSRE Loopback LAN Enabled Microsoft Loopback Adapter System
Local Area LAN Network cable unplugged Stratus AA-U57100 Copper Gigabit Adapter System
Local Area LAN Network cable unplugged Stratus AA-U57100 Copper Gigabit Adapter #2 System
Local Area LAN Network cable unplugged Stratus emb-82544GC Copper Gigabit Adapter System
Local Area LAN Network cable unplugged Stratus emb-82544GC Copper Gigabit Adapter #2 System
Local Area LAN Network cable unplugged Stratus emb-82559 10/100 Enet Adapter System
Local Area LAN Network cable unplugged Stratus emb-82559 10/100 Enet Adapter #2 System
vIntercon LAN Network cable unplugged Intel(R) Advanced Network Services Virtual Ada... System
vPublic (100 Base) LAN Network cable unplugged Intel(R) Advanced Network Services Virtual Ada... System
Disable
Status
Create Shortcut
Delete
Rename
Properties
Displays the properties of the selected connection.
Start
Network and Dial-up C...
4:45 PM

Step 2:
<*Windows 2003*>
Select *Internet Protocol (TCP/IP)* and click the *Properties* button:

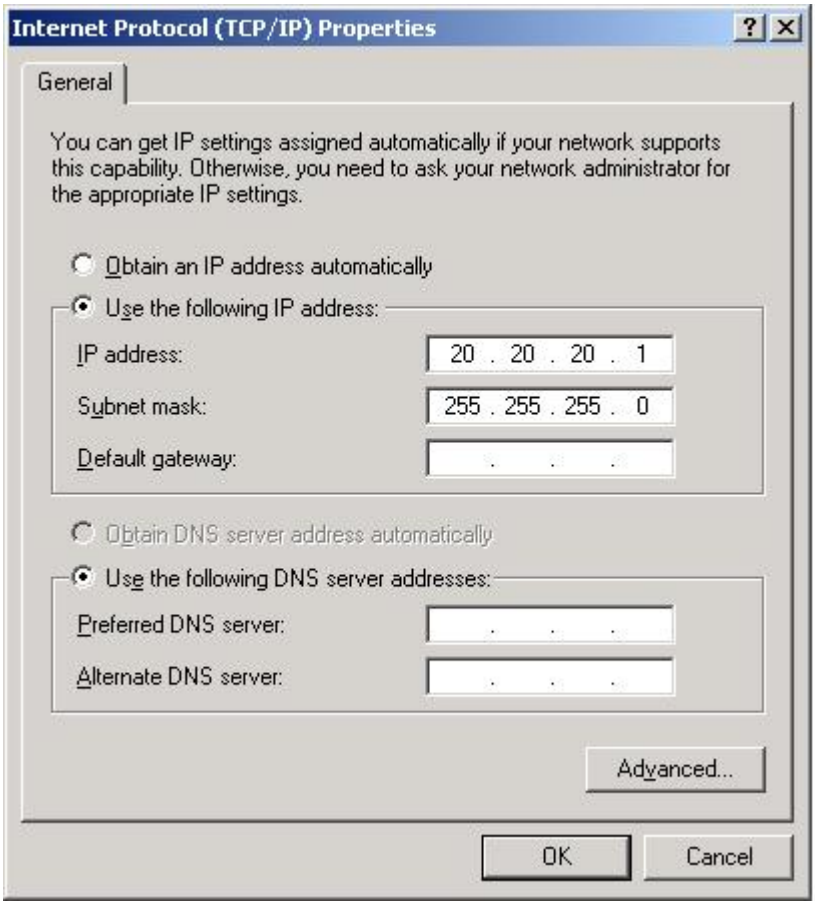


<Windows 2000>

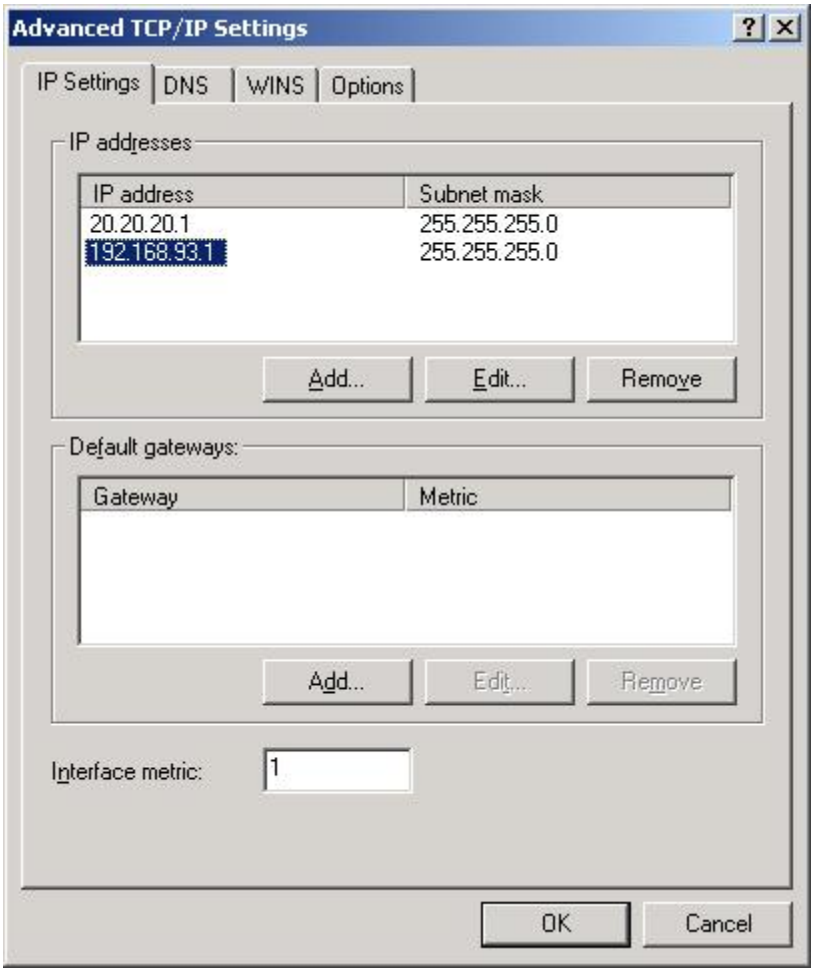
Select *Internet Protocol (TCP/IP)* and click the *Properties* button:



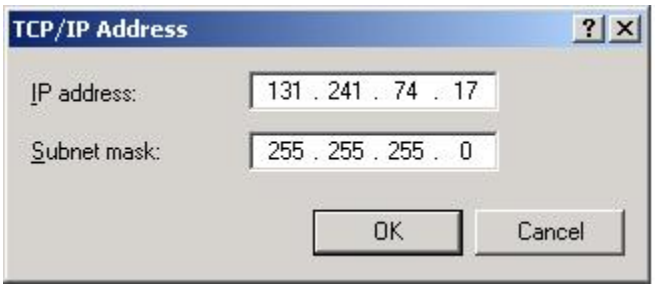
Step 3:
Change the IP Address to it: IP: 20.20.20.1
The image is as below:


Internet Protocol (TCP/IP) Properties
General
You can get IP settings assigned automatically if your network supports this capability. Otherwise, you need to ask your network administrator for the appropriate IP settings.
Obtain an IP address automatically
Use the following IP address:
IP address:
20 . 20 . 20 . 1
Subnet mask:
255 . 255 . 255 . 0
Default gateway:
Obtain DNS server address automatically
Use the following DNS server addresses:
Preferred DNS server:
Alternate DNS server:
Advanced...
OK
Cancel

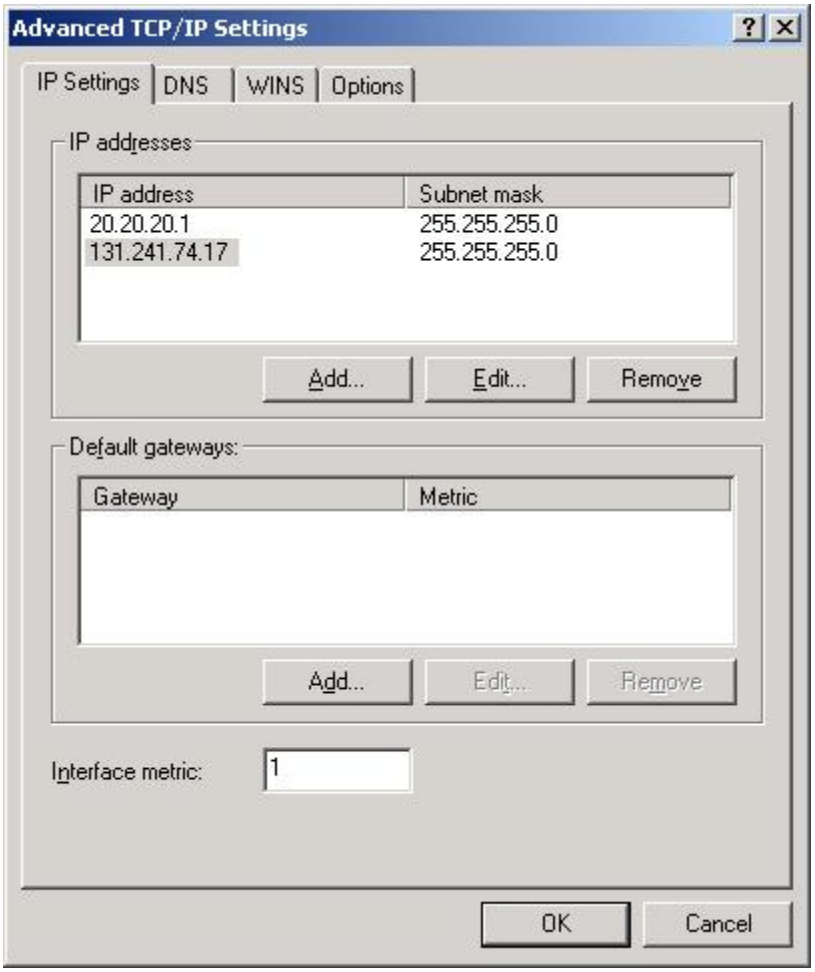
Step 4:
Click on the *Advanced* button, select 192.168.93.1 and click the *Edit* button as below:



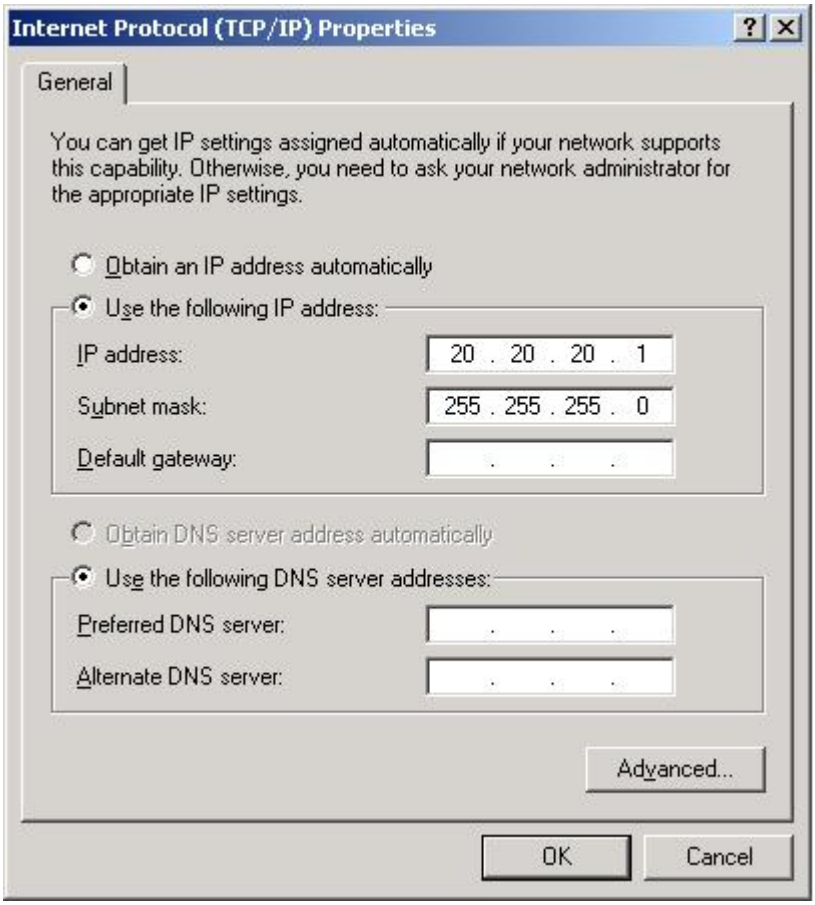
Step 5:
Change the second IP Address to IP: 131.241.74.17 and Click *OK*



Step 6:
Click *OK* on the following screen:



Step 7:
Click *OK* on the following screen:


Internet Protocol (TCP/IP) Properties
General
You can get IP settings assigned automatically if your network supports this capability. Otherwise, you need to ask your network administrator for the appropriate IP settings.
Obtain an IP address automatically
Use the following IP address:
IP address:
20 . 20 . 20 . 1
Subnet mask:
255 . 255 . 255 . 0
Default gateway:
Obtain DNS server address automatically
Use the following DNS server addresses:
Preferred DNS server:
Alternate DNS server:
Advanced...
OK
Cancel

This completes the steps to change the default IP addresses.